17th International Congress on Catalysis

2020 Vision

San Diego, California, USA
June 14-19, 2020
Manchester Grand Hyatt Hotel

Welcome to the 17th International Congress on Catalysis

DISCLAIMER: Neither the North American Catalysis Society, the International Association of Catalysis Societies, nor any person acting on their behalf shall be responsible or liable in any manner whatsoever for any injury or damage caused to you or your property that may occur during your attendance at the convention center and/or staying at or visiting the hotels.

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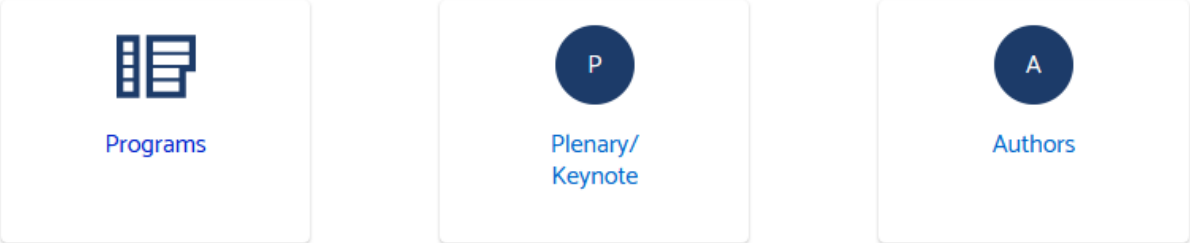
https://nam.confex.com/nam/2020icc/meetingapp.cgi



You can navigate the entire conference program using the online app. Search the program by Day, by Session, by Speakers, and more. Plenary and Keynote speakers are highlighted. For more information, please visit the link above.

Meeting abstracts will ONLY be searchable through the app.

No Cameras Allowed

No photography or video recording is permitted during the event.

On May 14, 2020, the ICC2020 Organizing Committee, in consultation with the North American Catalysis Society and with legal counsel, announced the difficult decision to cancel the 17th International Congress on Catalysis, which as to be held in San Diego a few weeks later.

The evolution of the COVID-19 pandemic made it evident that such a large gathering would be neither safe nor feasible. The decision-making process was difficult and had to assess legal and logistical matters that required the decision to be deferred until such a date. At all times, the health and well-being of everyone involved remained our preeminent concern. We were heartbroken that circumstances beyond our control forced this decision at a stage when all the details, the social venues and activities, and the technical program were final.

It would have been our privilege to serve as your hosts, with all but the last few minor details firmly in place to make this gathering a memorable success. Our disappointment is mixed in good measure with our gratitude to all of you in the catalysis community for your generous support as presenters, attendees, sponsors, and exhibitors. The 2000+ abstracts submitted represent a commitment from all of you to the success of this meeting and an effort to help us succeed. Such support strengthened our commitment at the time to shift the 17th ICC to May or June 2021. We made this proposal to the IACS Board, but it was not approved based on fiscal considerations and remaining uncertainties about the evolution of the pandemic; such a decision was disappointing at the time but proved prudent in retrospect.

The ICC2020 Organizing Committee then agreed, with the support of the NACS and IACS Boards, to publish and post the proceedings in the same manner as if the congress had been held. These materials, which I preamble here with this letter as Meeting Chair, are now available on-line at http://nacatsoc.org. The plenary lecturers and the Award recipients kindly agreed to record a video of their lectures, which are available online as listed in the program and the Honors & Awards pages.

I am personally indebted to all the members of the ICC2020 Organizing Committee listed on the following pages. They trusted me to lead, and they more than matched that trust with their dedication and their support. It was my privilege to lead them and to have served with them. Without exception, their efforts went beyond what they were asked to do and their dedication to quality, in both technical and logistical matters, was exceptional. I have opted not to list them here by name and accomplishments, because I cannot do justice to their individual contributions, but also because they worked seamlessly as a team and accomplished much more than “the sum of our parts”.

I speak for each one of them in thanking each one of those who submitted abstracts and registered to attend for your contributions, which are now preserved as abstracts and appear in final timeline for presentations and posters as part of this Program Book. We also thank the sponsors acknowledged in these materials, which maintained their support to help us meet the burden of unrecoverable expenses and of assembling this Program Book.

This 17th International Congress on Catalysis will be remembered as the one that never happened. This Program Book acts as a remembrance of all the efforts and contributions from the members of the ICC2020 Organizing Committee, from the plenary and award lecturers who recorded their lectures for posterity, from the authors whose contributions now appear in this Program Book, and from the sponsoring organizations that provided the financial support. I hope that it helps our catalysis community, many years hence, to remember the difficult moments that we have shared over the last two years and the hurdles that we faced as we stayed together and continued to thrive.

Stay safe and healthy. With regards and best wishes

Enrique Iglesia
Meeting Chair
17th International Congress on Catalysis (ICC2020)
iglesia@berkeley.edu

on behalf of the entire ICC2020 Organizing Committee

Organizing Committee

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Enrique Iglesia
University of California, Berkeley

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University of New Mexico

Bruce Gates
University of California, Davis

Umit Ozkan
Ohio State University

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Columbia University

Christopher Jones
Georgia Institute of Technology

J. Will Medlin
University of Colorado

Susannah Scott
University of California, Santa Barbara

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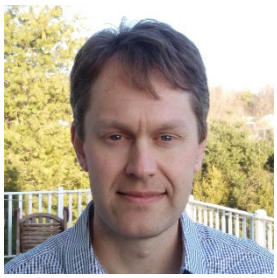
Elizabeth Biddinger
City College of New York

Raj Gounder
Purdue University

Secretary



Bjorn Moden
Zeolyst *International*

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Dow, Inc.

Aditya Bhan
University of Minnesota

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Wayne State University

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Colorado School of Mines

Shaama Sharada
University of Southern California

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Purdue University

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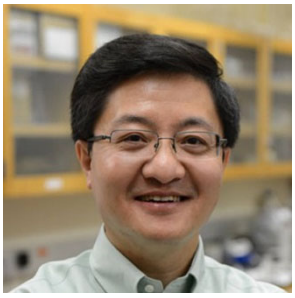

Yong Wang
Pacific Northwest National Laboratory

Fundraising Committee

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BASF Corporation

Sudhakar Jale
W.R. Grace

Hye Kyung Timken
Chevron Corporation

Exhibits

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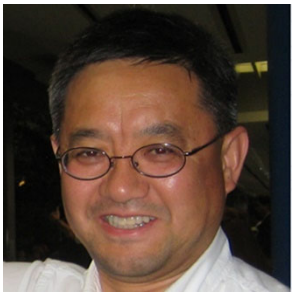
Micromeritics

Financials and Budget Committee

Ya-Huei (Cathy) Chin
University of Toronto

Huamin Wang
Pacific Northwestern National Laboratory



C.Y. Chen
Chevron Corporation

Exhibits

Jesse Hensley
National Renewable Energy Laboratory

Topical Organizers

Topical Organizer	Program Area
Kandis Leslie Abdul-Aziz	Emerging and Cross-Cutting Topics in Catalysis
Frank Abild-Pederson	Syngas Generation & Use
Shaun Alia	Electrocatalysis & Photocatalysis Fundamentals
Alan Allgeier	Catalysis for Chemical Synthesis
Jonas Baltrusaitis	In situ and Operando Analysis
Pratim Biswas	Reaction Engineering
Praveen Bollini	Catalyst Synthesis & Characterization
Gerardine Botte	Catalysis in Nitrogen Chemistry
Nick Brunelli	Catalysis for Chemical Synthesis
Matteo Cargnello	C1 Chemistry
Carlos Carrero	Functionalization and Conversion of C2-C5 Paraffins
Cathy Chin	Catalysis with Ordered Porous Materials
Phil Christopher	Catalysis with Supported Metals
Steven Crossley	Conversion of Biomass and Biomass-derived Molecules
Ajay Dalai	Catalyst Deactivation
Abhaya Datye	Catalysis with Supported Metals
Paul Dauenhauer	Conversion of Biomass and Biomass-derived Molecules
Bill Epling	Catalysis in Nitrogen Chemistry
Wei Fan	Catalysis with Ordered Porous Materials
Carrie Farberow	Conversion of Biomass and Biomass-derived Molecules
David Flaherty	Hydrogen Generation & Use
Anatoly Frenkel	In situ and Operando Analysis
Gustavo Fuentes	Catalyst Deactivation
Rebecca Fushimi	Functionalization and Conversion of C2-C5 Paraffins
Rachel Getman	Theory & Computation in Catalysis
Lars Grabow	Carbon-Carbon and Carbon-Heteroatom Bond Formation
Lauren Greenlee	Environmental Catalysis
Oliver Guitierez	Heteroatom Removal
Mike Harold	Reaction Engineering
Ive Hermans	Carbon-Carbon and Carbon-Heteroatom Bond Formation
Andreas Heyden	Theory & Computation in Catalysis

Topical Organizer	Program Area
David Hibbitts	Catalytic Cracking
Josephine Hill	Hydrogen Generation & Use
Jason Hicks	Catalyst Synthesis & Characterization
Bo Hu	Functionalization and Conversion of C2-C5 Paraffins
Mike Janik	C1 Chemistry
Ayman Karim	In situ and Operando Analysis
Sheima Khatib	Emerging and Cross-Cutting Topics in Catalysis
John Kuhn	Syngas Generation & Use
Fanxing Li	C1 Chemistry
Lin Luo	Catalysis for Chemical Synthesis
A.J. Medford	Catalysis in Nitrogen Chemistry
Eranda Nikolla	Catalysis with Oxides
Baron Peters	Theory & Computation in Catalysis
J. Regalabuto	Catalyst Synthesis & Characterization
Yuriy Roman	Catalysis with Ordered Porous Materials
Michele Sarazen	Carbon-Carbon and Carbon-Heteroatom Bond Formation
Natalia Semagina	Heteroatom Removal
Yu-Ying Shu	Catalytic Cracking
Carsten Sievers	Catalytic Cracking
Kevin Smith	Catalyst Deactivation
Chunshan Song	Heteroatom Removal
Voja Stamenkovic	Electrocatalysis & Photocatalysis Fundamentals
Janos Szanyi	Environmental Catalysis
Andrew Teixeira	Reaction Engineering
Jaime Valente	Catalysis with Oxides
Aleksandra Vojvodic	Electrocatalysis & Photocatalysis Fundamentals
Yong Wang	Hydrogen Generation & Use
Bingjun Xu	Catalysis with Supported Metals
Zili Wu	Catalysis with Oxides
Alexey Yezerets	Environmental Catalysis
Matt Yung	Syngas Generation & Use

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Welcome to the 17th ICC Meeting

On behalf of the North American Catalysis Society (NACS), it is our honor to host the 17th ICC meeting. The NACS was founded in 1956 to promote and encourage the growth and development of the science of catalysis, to provide lifelong learning and career growth opportunity services to members, to organize professional meetings as venues to report, discuss, and exchange perspectives and knowledge in the field of catalysis, to serve as a coalescing node for local catalysis clubs to share plans and activities, and to act as a liaison with international catalysis societies, working with the International Association of Catalysis Societies (IACS) and with other scientific organizations and individuals, without intended financial gain or profit to its members. With this meeting, NACS continues this tradition of service through our logistical and financial support and in doing so, we are delighted to acknowledge the efforts of the organizers and the scientific and practical contributions of our members during the preparation of the 17th ICC meeting.

The NACS consists of 15 affiliate local clubs and societies in Canada, Mexico, and the United States and well over 1,500 members. It stewards and supports the organization of international and national meetings and provides logistical support and seed financial funding to the organizing committees. It also provides travel awards with the National Science Foundation and the U.S. Department of Energy; these awards are presented to students and postdoctoral fellows to attend the 17th ICC meeting.

On behalf of the NACS executive committee and its governing board, I wish you a productive and memorable meeting. I thank, on your behalf, the 17th ICC organizing committee for their efforts in bringing us together. Enjoy the science, the sharing among friends and colleagues, and the gathering of our extended catalysis family.

Regards.

Jingguang Chen, President, North American Catalysis Society

Officers of the Catalysis Societies

The International Association of Catalysis Societies (IACS)

Executive Committee	
President	Gabriele Centi
Vice-president	Enrique Iglesia
Secretary	Sergio Fuentes
Treasurer	Justin Hargreaves
IACS Officer	Atsushi Fukuoka

Council Members			
Argentina	Carlos Apesteguía	Japan	Hiromi Yamashita
Argentina	Miguel A. Baltanas	Japan	Keiichi Tomishige
Australia	Thomas Maschmeyer	Korea	Wonyong Choi
Australia	Michael Stockenhuber	Korea	Kwan Young Lee
Austria	Christoph Rameshan	The Netherlands	Moniek Tromp
Austria	Günther Rupprechter	The Netherlands	Bert M. Weckhuysen
Belgium	Eric Gaigneaux	Nordic Countries	Hilde J. Venvik
Belgium	Johan Martens	Nordic Countries	Dmitry Murzin
Brazil	Fábio Bellot Noronha	Poland	Malgorzata Witko
Brazil	Sibele Pergher	Poland	Piotr Kustrowski
Bulgaria	Sonia Damyanova Ivanova	Portugal	Mário Manuel Quialheiro Simões
Bulgaria	Lachezar Angelov Petrov	Portugal	Manuel Fernando Ribeiro Pereira
Canada	Ying Zheng	Romania	Vasile I. Parvulescu
Canada	Ya-Huei (Cathy) Chin	Romania	Simona Margareta Coman
China	Xinhe Bao	Russia	Valentin N. Parmon
China	Ye Wang	Russia	Alexander Yu. Stakheev
Czech Republic	David Kubička	Singapore	Armando Borgna
France	Francoise Maugé	Slovakia	Milan Králik
France	Hélène Olivier-Bourbigou	South Africa	Holger Friedrich
Germany	Dieter Vogt	South Africa	Nico Fisher
Germany	Jan-Dierk Grunwaldt	Spain	Agustín Martinez Feliu
Hungary	Andras Erdohelyi	Spain	Alberto Marinas
Hungary	József Valyon	Turkey	Deniz Uner
Ibero-American Countries	Javier Gil Llambias	Turkey	Alper Uzun
Ibero-American Countries	Sergio Fuentes	United Kingdom	Justin Hargreaves
India	Raksh Vir Jasra	United Kingdom	Haresh Manyar
India	Ramesh C. Deka	USA	Jingguang Chen
Italy	Rinaldo Psaro	USA	Enrique Iglesia
Italy	Leonarda Liotta	Venezuela	Mireya Goldwasser

Officers of the Catalysis Societies

The North American Catalysis Society (NACS)

National Officers	President	Jingguang Chen
	Vice-president	Christopher Jones
	Secretary	Javier Guzman
	Treasurer	Beata Kilos-Réaume
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	New York - CSNY	Marco Castaldi
	Mexico – MAC	Javier Rivera de la Rosa
	Michigan - MCS	Eric Stangland
	New England - NECS	Andrew Peterson
	ORCS	Karl O. Albrecht
	Pacific – PCCS	Alexander Katz
	Pitt/Cleveland - PCCS	Götz Veser
	Great Plains (GPCS)	Daniel Resasco
	Rocky Mountains - RMCS	Ryan Richards
	Southeast - SECS	Carsten Sievers
	Southwest - SWCS	Bert Chandler
	Tri-State - TSCS	Umit S. Ozkan
Directors-at-Large		Abhaya Datye
		Jim Dumesic
		Bruce C. Gates
		Fabio H. Ribeiro
		Stuart L. Soled
		John Armor
Former Officer	Past-President	Enrique Iglesia

Social Program Highlights

A variety of social events are scheduled for registered conference participants. In addition, all attendees can avail themselves of the many local attractions and longer day trips possible in the beautiful San Diego area.

Conference Events

Sunday, June 14

The opening reception will be held at the historic San Diego Natural History Museum.

Thursday, June 18

The closing banquet will be held poolside under the San Diego skies at the Manchester Grand Hyatt Hotel.

Thursday, June 18

A North American Catalysis Society tradition is the 5K Fun Run! The 5K run will take place in Embarcadero Marina Park, adjacent to the hotel. Attendees will meet at 5:45 AM to walk to the start. Prizes will be awarded!

Social Program Highlights

Organized Events

Tuesday, June 16

A block of tickets has been reserved to watch the San Diego Padres play the Cincinnati Reds in Major League Baseball at Petco Park, just down the street from the conference hotel. Tickets are an additional cost.

Wednesday, June 17

Enjoy a three-hour evening tour of the Pacific on board the Ohana and catch a glimpse of blue whales, fin whales, humpback whales, minke whales, dolphins, and sea lions. Tickets are an additional cost.

Throughout

Many excursion opportunities are possible close to the conference venue, ranging from a San Diego Bay dinner cruise, a waterfront concert by the San Diego Symphony orchestra, a tour of the Temecula wine country, or visiting the beautiful beaches, historic sites, and other attractions of the city.

NAM NYC 27

27th North American Meeting

May 23-28, 2021

New York, New York

Hilton New York Midtown

NACS
North American Catalysis Society

Accelerating reactions faster than a New York minute

Awards & Honors

17th ICC
INTERNATIONAL CONGRESS ON CATALYSIS
2020 Vision
San Diego, California

Awards

Presented by the International Association of Catalysis Societies

The International Association of Catalysis Societies (IACS) sponsors two prestigious awards to recognize the accomplishments of catalysis scientists and to promote the advancement of catalysis science world-wide.

These awards include plenary lectures at the quadrennial International Congress on Catalysis (Heinz Heinemann Award, the International Catalysis Award). These awards are presented every four years and the nomination deadlines are listed within the IACS website. In addition, IACS recognizes the coming achievements of researchers at the beginning of their careers with the Young Scientists Travel Support Prizes as well as working with the support of the North American Catalysis Society (NACS) to provide travel awards for graduate students and postdocs at North American institutions.

- Heinz Heinemann Award
- International Catalysis Award
- IACS Young Scientists Travel Support Prizes
- NACS Travel Award for Graduate Students and Postdoc

The **International Association of Catalysis Societies proudly announces 50 Young Scientist recipients.**

The North American Catalysis Society is honored to have 83 travel award winners.

Congratulations to all the very deserving recipients!

2020 Heinz Heinemann Award

Professor Avelino Corma

Institute of Chemical Technology, Polytechnical University of Valencia, Spain

The International Association of Catalysis Societies (IACS) is pleased to have Prof. Avelino Corma as the recipient of the 2020 Heinz Heinemann Award, for his groundbreaking achievements in transitioning from the molecular design of solid catalysts to their industrial applications. Prof. Corma has made remarkable advances in the design, synthesis, and application of catalysts that led to enabling discoveries and developments with great impact in several areas of catalysis. These seminal contributions had a profound and broad impact on the industrial practice of chemical processes. He has published a large number of highly cited scientific publications, and 150 patents (several of which are in application). Professor Corma has inspired many students, supervised 52 PhD theses, and mentored and enabled many postdocs and researchers that are now working in academia and industry all over the world.

Avelino Corma Canós was born in 1951 in Moncofa, Spain. In 1974 he obtained the degree in Chemistry at Universidad de Valencia (Spain) and in 1976 the PhD degree in chemistry at the Universidad Complutense de Madrid, Spain. He spent three years as post-doctoral fellow at the Dept. of Chemical Engineering of the Queens University, Canada, in 1979 he was appointed before as tenured scientist, then as scientist research and research professor at the Instituto de Catálisis y Petroleoquímica, Madrid (Spain), moving in 1990 to Valencia (Spain) where he founded and directed for many years the Instituto de Tecnología Química-UPV-CSIC. He is professor at the Universidad Politécnica de Valencia (Spain) since 2010, and honorary professor at Jilin University. He has been appointed “Dr Honoris Causa” by 15 universities.

Among the many service in organizations and commissions of trust, he has held the presidency of the International Association of Catalysis Societies (2012-2016) and the European Association of Catalysis Societies (2009-2013).

Professor Corma has received many awards including the Blaise Pascal Medal for Chemistry, European Academy of Sciences (2018), Chinese government Friendship Award (2017), IZA Award, International Zeolite Association (2016), Prince of Asturias award for Technical & Scientific Research (2014), Eni Award (2010), Michel Boudart Award for the Advancement of Catalysis (2009), Gabor A. Somorjai Award for Creative Research in Catalysis (2008), Gold Medal of The Royal Society of Chemistry of Spain (2005), Breck Award of the International Zeolite Association (IZA) (2004), Eugene J. Houdry Award in Applied Catalysis (2002), F. Gault Lectureship Award of the European Foundation of Catalysis Societies (2001), F. Ciapetta Award of the North American Catalysis Society (1998). He is member of the Royal academies of Science and of engineering of Spain. Is Foreign Member of the National Academy of Engineering of USA, the Royal Society, and the Academy of Science of France.

Professor Corma’s recorded talk can be found online at https://youtu.be/t5rDZrL9L2E.

2020 International Catalysis Award

Professor Xile Hu

Institute of Chemical Sciences and Engineering, Ecole Polytechnique Fédérale de Lausanne

The International Association of Catalysis Societies (IACS) is pleased to have Prof. Xile Hu as the recipient of the 2020 International Catalysis Award, for the creative and high-impact work in combining material development, electrochemistry and concepts of homogeneous catalysis for the production of solar fuels. Prof. Hu directs an interdisciplinary research program to develop catalysis for sustainable synthesis of added-value chemicals and for cost-effective production of solar fuels. His group unifies concepts and methods in homogeneous, heterogeneous, and enzyme catalysis to obtain unprecedented fundamental understanding of catalysis and novel catalysts with superior properties to those in current use. He has published more than 150 papers, with more than 18,000 citations and an H-index of 62.

Xile Hu was born in 1978 in China. He studied chemistry at Peking University and obtained a B.S. degree in June 2000. Then he moved to the US for PhD at the University of California, San Diego, where obtained the degree in inorganic chemistry in 2004. He was a postdoctoral scholar at the California Institute of Technology in 2005. In July 2007, he was appointed as a tenure-track assistant professor of chemistry in the Institute of Chemical Sciences and Engineering at the École Polytechnique Fédérale de Lausanne (EPFL) in Switzerland. He is the founder and director of the Laboratory of Inorganic Synthesis and Catalysis. He was promoted to associate professor in January 2013 and full professor in June 2016.

Among professional activity, to mention the member of the Editorial Board or Advisory Board of the journals Chemical Communications, Inorganic Chemistry Frontiers, Chemistry, An Asian Journal and in the years 2014 – 2018 of ACS Catalysis.

Prof. Hu received several European Research Council (ERC) grants: i) Starting Grant (2010), ii) Consolidator Grant (2015), iii) Proof-of-Concept Grant (2016,2018).

Professor Hu received many awards, among which the Royal Society of Chemistry Homogeneous Catalysis Award (2019), Tajima Prize, International Society of Electrochemistry (2017), Bau Family Award in Inorganic Chemistry (2016), European Medal for Bio-Inorganic Chemistry (Eurobic Medal) (2014), Chemical Society Reviews Emerging Investigator Lectureship, RSC (2013), EuCheMS Organic Division Young Investigator (2012), Extraordinary Young Scientist, World Economic Forum (2012), Werner Prize, Swiss Chemical Society (2011).

Professor Hu's recorded talk can be found at the Video History of Catalysis at https://youtu.be/WWkLWKMslOg.

17th ICC Young Scientists Prize

The Young Scientists Travel Support Prizes are awarded and administered by the International Association of Catalysis Societies. The objective of the travel awards program is to encourage the participation of young scientists, no older than 35 years of age, in the International Congress on Catalysis. These awards cover a portion of registration and travel to the congress. A certificate will be given during an award ceremony in San Diego (ICC 2020).

Congratulations to the following travel award winners!

First Name	Last Name
Jaroslav	Aubrecht
Koen	Wynand
Thomas	Burger
Samuel	Carlier
Karolina	Chałupka
Roberto	Fiorenza
Marianna	Gambino
George	Giannakakis
Geun-Ho	Han
Max	Huelsey
Satoshi	Ishikawa
Hyun	Seung
John	Keogh
Yongwoo	Kim
Tomáš	Kiška
Takayuki	Kojima
Samira	Fatma
Kelvin	Kwok
Thomas	Len
Stine	Lervold
Li	Li
Liliana	Patrícia Lima Gonçalves
Lorenz	Lindenthanl
Zong-Hui	Liu
Lichen	Liu

First Name	Last Name
Shida	Liu
Hongfei	Ma
Sinqobile	V. L. Mahlaba
Aryane	Azevedo Marciniak
Jim	Mensah
Isaac	Meza-Trujillo
Thulani	Nyathi
Carla	Alexandra Orge Fonseca
Mateus	Freitas Paiva
Alessandro	Piovano
Violetta	Pospelova
Matthew	E. Potter
Shaine	Raseale
Anna	Rokicińska
Amit	Sahu
Małgorzata	Smoliło
Vera	Truttmann
Luis	Virla
Helena	Yuan Wang
Jijie	Wang
Eike	Sebastian Welter
Shunji	Xie
Takeharu	Yoshii
Diego	Zapater
Muhammad	Zubair

17th ICC Travel Awards

These travel awards are sponsored by the North American Catalysis Society and administered by the ICC Organizing Committee. The objective of the travel awards program is to encourage the participation of students and postdocs in the International Congress on Catalysis. These awards cover registration and a portion of travel and lodging at the congress. To be eligible, the graduate student/postdoc must be currently enrolled or employed by an institution in North America (US, Canada, or Mexico).

Congratulations to the following travel award winners!

Graduate Students

Name	Institution
Lu Yang	University of Virginia
Neil Razdan	University of Minnesota
Alireza Saraeian	Iowa State University
Samji Samira	Wayne State University
ChoongSze Lee	University of Minnesota
Deepak Kunwar	University of New Mexico
Mihir N. Bhagat	Northwestern University
Anoop Uchagawkar	University of Kansas
Tianze Xie	Penn State University
Heng Dai	University of Houston
Jacob Anibal	University of Delaware
Xiao Li	University of Houston
Emily Cheng	Northwestern University
Jon Wilson	University of Delaware
Siddharth Deshpande	Purdue University
Chengshuang Zhou	Stanford University
Sagar Sourav	Lehigh University
William McDermott	University of Wisconsin
Laura Alejandra Gomez	University of Oklahoma
Reda Bababrik	University of Oklahoma
Sagar Udyavara	University of Minnesota
Daniel Bregante	University of Illinois at Urbana-Champaign
Aibolat Koishybay	Tulane University
Lang Xu	University of Wisconsin
Kareesa Kron	University of Southern California
Chris Coonrod	Rice University
Clarita Y. Regalado Vera	New Mexico State University

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Name	Institution
Mathew Rasmussen	University of Colorado
Gregory L. Tate	University of South Carolina
Sokefun “Tosin” Yetunde	University of South Florida
Kevin Gu	University of Virginia
Joseph Mccaig	North Carolina State University
Gaurav Kumar	University of Minnesota
Michael Radetic	Carnegie Mellon University
Saurabh Ailawar	Ohio State University
Hafeera Shabbir	Clemson University
Cheng-Han Li	Ohio State University
Ibeh Omodolor	University of Toledo
Arvind Nanduri	Texas A&M University - Kingsville
Hafsa Karroum	Washington State University
Jiayi Xu	Kansas State University
Tu Nguyen	University of California, Riverside
Hamed Bateni	Iowa State University
Boris Sheludko	Rutgers University
Abhinav S. Raman	University of Pennsylvania
Joshua L. Vincent	Arizona State University
“Crystal" Honghong Shi	University of Kansas
Daniel Braedt	University of Wyoming
Ryan B Dudek	North Carolina State University
Sean T. Dix	University of Michigan
Eddy Jonatan Moreno Roman	Universidad Autónoma de Nuevo León
Himanshi Dhawan	University of Alberta
Gianluca Pauletto	Polytechnique Montréal
Diego Alexander Gonzales Casamachin	Universidad Autónoma de Nuevo León
Gabriela Hernandez-Salgado	Universidad Autónoma Metropolitana
Julio Lopez-Curiel	Universidad Autónoma Metropolitana
Negar Manafi Rasi	University of Calgary
Haoyu Nie	University of Toronto
Daniel G. Araiza	National Autonomous University of Mexico

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Postdoctoral Scholars

Name	Institution
Madelyn R. Ball	Georgia Institute of Technology
Gengnan Li	University of Oklahoma
Zhenhua Xie	Brookhaven National Laboratory
Yifeng Zhu	Pacific Northwest National Laboratory
John Di Iorio	Massachusetts Institute of Technology
Joshua Gopeesingh	University of Massachusetts
Joaquin Resasco	University of California, Santa Barbara
Jeroen Van der Mynsbrugge	University of California, Berkeley
Lucas Ellis	National Renewable Energy Laboratory
Katherine Koh	Pacific Northwest National Laboratory
Leiduan Hao	Washington State University
Zhenghong Bao	Oak Ridge National Laboratory
Jia Xu	Arizona State University
Siddarth Krishna	Purdue University
Hossein Robatjazi	University of California, Santa Barbara
Pranaw Kunal	Oak Ridge National Laboratory
Brandon Bukowski	Northwestern University
Nicholas Ryan Jaegers	Pacific Northwest National Laboratory
Bo Chen	Oak Ridge National Laboratory
Giada Innocenti	Georgia Institute of Technology
Sten Lambeets	Pacific Northwest National Laboratory
Zheng Lu	Argonne National Laboratory
Perla Sánchez	National Autonomous University of Mexico
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Exhibition Dates and Hours

Exhibitor booths are co-located with poster sessions and breaks

Monday June 15
5:00 PM to 8:00 PM

Tuesday June 16
9:00 AM to 12:30 PM
2:30 PM to 8:00 PM

Wednesday June 17
9:00 AM to 12:30 PM
2:30 PM to 8:00 PM

Thursday June 18
9:00 AM to 12:00 PM

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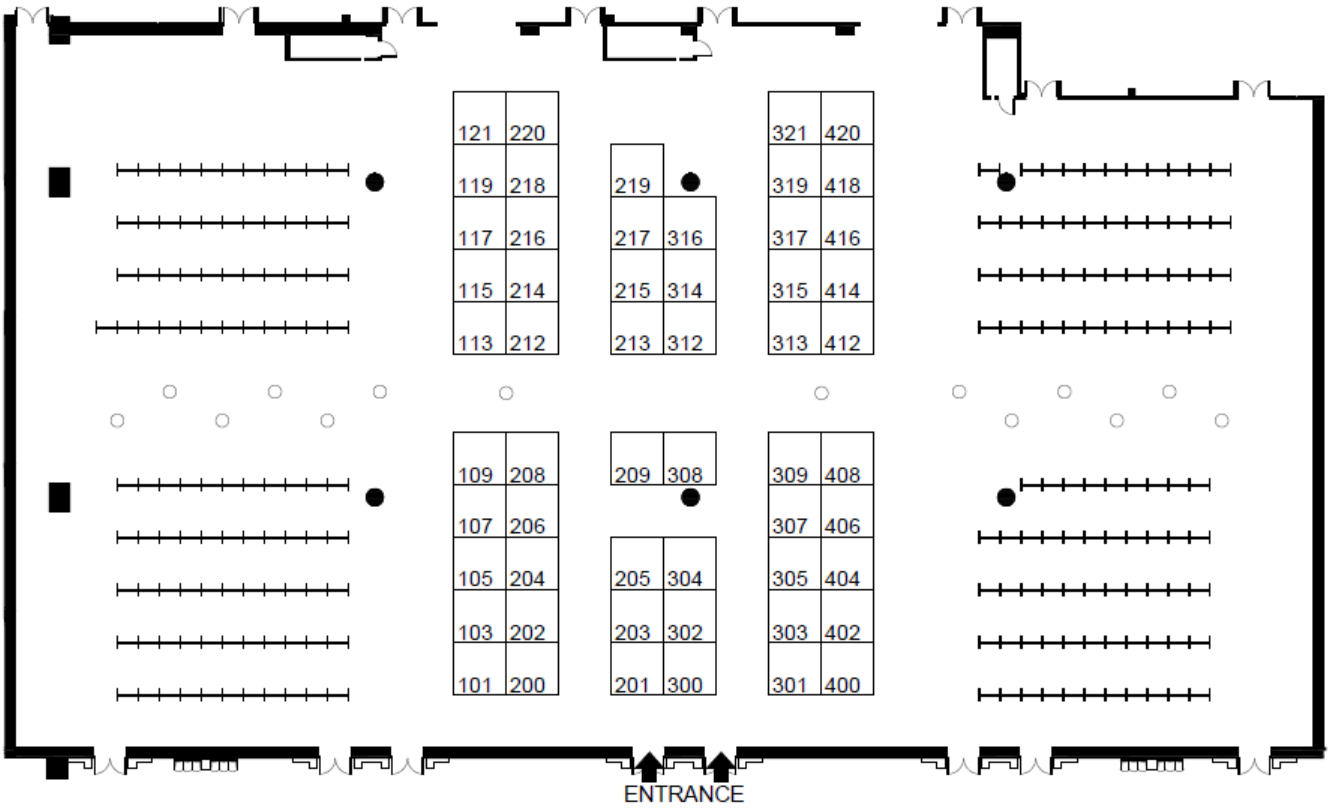

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17th ICC Workshops and Panels

ICC Instructional Workshops and Panel Sessions

Several educational workshops and panel sessions on technical topics will be offered on the first day of the Congress, Sunday June 14, 2020. Over a morning session (8:30-11:30 AM) and an afternoon session (1:30-4:30 PM), there will be in-depth discussion on the topics described below. Pre-registration was required.

AM Workshop: Fundamentals of Electrocatalysis

Gerardine G. Botte (Texas Tech University)

This workshop will cover an introduction to fundamental aspects of electrochemistry and how to relate those to electrocatalysis. Participants will learn about differences between chemical and electrochemical reactions, overpotential, experimental considerations in electrocatalysis, recognizing and interpreting experimental data needed to determine electrochemical reaction rates, types of electrode architectures, examples of electrokinetics models, and will perform electrokinetics calculations. This is an active learning workshop. Participants are expected to bring a laptop. Excel and open source software maybe used during the workshop.

AM Workshop: Fundamentals of Catalyst Characterization

Annette Trunschke (Fritz-Haber-Institut der Max-Planck-Gesellschaft), Robert Schlögl (Fritz-Haber-Institut der Max-Planck-Gesellschaft), Charles T. Campbell (University of Washington), Xinhe Bao (State Key Laboratory of Catalysis, Dalian Institute of Chemical Physics, Chinese Academy of Sciences)

The workshop deals with basic and advanced methods for analysis of structural and electronic properties of catalyst precursors and the dynamics of the catalyst surface in the working state. The rate is given by the ability of the catalyst to activate reactants on its surface. The active surface sites are frequently minority species (defects, impurities), difficult to detect in presence of chemically similar spectator species. In addition, the active sites show a dynamic response to the chemical potential of the gas phase. Therefore, catalysts need to be studied under operation. The workshop provides an introduction into basic concepts of operando and complementary adsorption techniques applied in advanced characterization of heterogeneous catalysts. At the beginning of the workshop a brief survey of the general workflow in catalyst characterization is given followed by three lectures. The following topics are included:

- Description of bulk (X-ray diffraction) and local structures at the atomic scale (electron microscopy) quasi in situ and under reacting environments.
- Analysis of the electronic structure of solids and catalyst surfaces as well as the detection of minority species by in situ and operando techniques, such as ambient pressure photoelectron spectroscopy (AP-XPS), near edge x-ray absorption fine structure (NEXAFS), UV/VIS/NIR, and resonance Raman spectroscopy.
- Investigation of catalyst surfaces by adsorption of probe molecules, reactants and intermediates using infrared and UV/Vis/NIR spectroscopy and adsorption calorimetry.

17th ICC Workshops and Panels

AM/PM Workshop: Theory, Applications and Tools for Multiscale Kinetic Modeling

Dion Vlachos (University of Delaware), Michail Stamatakis (University College London), Matteo Maestri (Politecnico di Milano), Mauro Bracconi (Politechnico di Milano), Bharat Medasani (University of Delaware), and Gerhard Wittreich (University of Delaware)

Part I of the workshop will focus on mean field kinetic models and their integration with computational fluid dynamics (CFD). First, the fundamentals of microkinetic models will be discussed. This will entail description of inputs and outcomes, reaction network generation, estimation of kinetic model parameters, mean field microkinetic modeling, descriptor-based microkinetic modeling for catalyst discovery, model analytics, and their integration with CFD. Available software will be reviewed.

Part II of the workshop will focus on kinetic Monte Carlo (KMC) models and their integration with computational fluid dynamics (CFD). First, the fundamentals of stochastic processes will be discussed and examples will be illustrated. Limitations of mean field models will be briefly discussed. Methods to integrate KMC models into CFD will also be discussed. Available software will be reviewed.

PM Panel Discussion: Presenting Research

Haichao Liu (Peking University, Journal of Catalysis), Josephine Hill (University of Calgary, Applied Catalysis A: General), Ding Ma (Peking University, ACS Catalysis) and Jesse Hensley (National Renewable Energy Laboratory)

This session will consist of a panel of senior researchers and journal editors to provide their perspectives and advice on delivering effective presentations, and writing clear and concise scientific manuscripts. Panelists will begin by presenting some material, followed by an open-ended Q&A session with the audience. Any and all participants are welcome.

17th ICC Workshops and Panels

PM Workshop: Fundamentals of Photocatalysis

Kazuhiro Takanabe (University of Tokyo) and Fuxiang Zhang (Dalian Institute of Chemical Physics)

Photocatalysis is of great importance in energy conversion and environmental remediation. This study session is aimed at newcomers in the field and will address fundamental aspects on how to examine and report photocatalytic and photoelectrochemical studies. We will discuss relevant phenomena that occur in different dimensions and timescales, and practical experimental techniques and efficiency calculations. We will also have an open Q&A session for participants.

PM Workshop: Fundamentals of Catalyst Synthesis

John Regalbuto (University of South Carolina) and Petra de Jongh (Utrecht University)

In this workshop, the most common methods of supported nanoparticle synthesis will be reviewed. Several classical and newer methods including incipient wetness impregnation and electrostatic adsorption will be discussed in depth. A hybrid of incipient wetness impregnation and electrostatic adsorption, termed "charge enhanced dry impregnation" will be described. Electrostatic adsorption will be extended to the controlled synthesis of supported bimetallic and dilute limit alloy nanoparticles. These methods are readily applicable at laboratory scale and can in principle be easily scaled.

PM Workshop: Advancing Catalysis Research with X-ray Absorption Spectroscopy

Simon Bare (Stanford Linear Accelerator Center), Maarten Nachtegaal (Paul Scherrer Institut) and Adriano Braga (Universidade de São Paulo), Adam Hoffman (Stanford Linear Accelerator Center) and Jiyun Hong (Stanford Linear Accelerator Center)

This hands-on workshop will cover important aspects of the application of X-ray absorption spectroscopy (XAS) as applied to the catalyst researcher. The workshop content will enable the researcher to have a firm grasp of how the technique might aid their own research, and why they should consider incorporating it into their research program. The workshop will include:

- An introduction to XAS and the information content that the technique provides
- Details of sample preparation and experimental pitfalls
- How to collect an XAS spectrum – including what is a beamline, what detectors should be used, and how to set up collecting a spectrum. We will collect XAS data in real-time for a metal oxide sample from a beam line at SSRL
- The major concepts involved in data processing and data analysis. Due to the time allotted to this workshop we will not delve deeply into data analysis or any one particular topic and we recommend this workshop for those interested in learning about XAS or those just starting to use XAS in their research. There are many week-long EXAFS schools that serve this purpose.

17th ICC Workshops and Panels

PM Workshop: Computational Catalysis

Matt Neurock (University of Minnesota)

The tremendous advances in the theoretical methods and computing power that have occurred over the past decade have helped to make computational catalysis an invaluable tool in understanding and designing catalytic systems. The workshop is aimed at fostering the use of quantum chemical methods and molecular simulation of catalytic reaction systems. The workshop will combine presentations along with hands-on tutorials and demonstrations. Participants are asked to bring along their laptops. The workshop will include:

- Benefits and Challenges Overview of the capabilities and limitations of Computational Catalysis with focus on realistic expectations of the accuracy, types of problems that can be studied, and time frames necessary to obtain meaningful results. The role of Computational Catalysis in today's industry landscape is also discussed.
- A brief introduction to the underlying methods, approximations and algorithms used in multiscale modeling of catalytic reactions: Ab initio quantum chemical wave-function and density functional theory methods, Monte Carlo and molecular dynamics simulations and descriptor-based catalyst screening. An overview on the application of these methods to catalytic reactions over metals, metal oxides, zeolites and other materials will be given.
- Hands-on guided tutorials will be given to demonstrate the use of first principle quantum chemical methods to gain fundamental insight into surface phenomena in heterogeneous catalytic reactions.

17th ICC Special Lectures

PLENARIES, AWARDS, AND KEYNOTES
Links included for recorded Plenary and Award lectures

Title	Authors	Day	Time
2020 Heinz Heinemann Award Lecture: From the Molecular Design of Solid Catalysts to their Industrial Applications https://youtu.be/t5rDZrL9L2E	**Avelino Corma***, Instituto de Tecnología Química, Valencia, Spain	Monday	8:20 AM
Photocatalysis and Electrocatalysis for Solar Fuel Production: Fundamentals and Practice	**Can Li***, State Key Laboratory of Catalysis, Dalian National Laboratory for Clean Energy, Dalian Institute of Chemical Physics, Chinese Academy of Sciences, Dalian, China	Monday	12:00 PM
2020 International Catalysis Award Lecture: Cooperative catalysis for water splitting and CO_2 electroreduction https://youtu.be/WWkLWKMslOg	**Xile Hu***, Institute of Chemical Sciences and Engineering, Ecole Polytechnique Fédérale de Lausanne, Lausanne, Switzerland	Monday	9:40 AM
The Low-T Oxidative Activation of NO over Cu-CHA SCR Catalysts: Theory, Transient Response Experiments and Kinetics	**Isabella Nova***[1];Federica Gramigni[1];Nicole Daniela Nasello[1];Umberto Iacobone[1];Tommaso Selleri[1];Enrico Tronconi[1];Nicola Usberti[1];Roberta Villamaina[1];Kefa Cen[2];Xiang Gao[2];Wenshuo Hu[2];De Chen[3];Endre Fenes[3];Hongfei Ma[3] and Kumar Ranjan Rout[4], (1)Dipartimento di Energia - Laboratory of Catalysis and Catalytic Processes, Politecnico di Milano, Milano, Italy, (2)State Key Laboratory of Clean Energy Utilization, Zhejiang University, Zhejiang, China, (3)Department of Chemical Engineering, Norwegian University of Science and Technology, Trondheim, Norway, (4)Industry, SINTEF, Trondheim, Norway	Monday	10:40 AM
Biophenol from Lignin: an integrated economically feasible and sustainable lignocellulosic biorefinery and downstream processing	**Bert F. Sels***, KU Leuven, Belgium	Monday	4:20 PM
'Carbo'Chemicals in the Circular Economy	**Jean-Paul Lange***, Shell Global Solutions B.V., Netherlands	Monday	2:00 PM
Plenary Lecture: Catalysis within Confined Spaces https://youtu.be/sIjm7cz2Tr0	**Unni Olsbye***, Department of Chemistry, University of Oslo, Oslo, Norway	Tuesday	8:20 AM
Heterogeneous Catalysis for Sustainable Chemical Conversion: On Metal Nanoparticles, Clusters, and Single Atoms at Interfaces	**Emiel J. M. Hensen***, Chemical Engineering and Chemistry, Eindhoven University of Technology, Eindhoven, Netherlands	Tuesday	12:00 PM
At the Frontier of Dynamic Surface Reactivity Via Catalytic Resonance Theory	**Paul J. Dauenhauer***, Chemical Engineering and Materials Science, The University of Minnesota - Twin Cities, Minneapolis, MN	Tuesday	9:40 AM
Keynote	**Lynn Gladden***, Cambridge University, United Kingdom	Tuesday	2:00 PM
Enhancement of Mass Transfer in Catalyst Support in Aqueous Phase	**Leon Lefferts***, Catalytic Processes and Materials, University of Twente, Enschede, Netherlands	Tuesday	4:20 PM

17th ICC Special Lectures

PLENARIES, AWARDS, AND KEYNOTES
Links included for recorded Plenary and Award lectures

Title	Authors	Day	Time
Plenary Lecture: Catalysis at Liquid-Solid Interfaces – From Understanding Elementary Steps to Designing the Reactive Environment https://youtu.be/zJEvDihMw4g	**Johannes Lercher***, Technical University of Munich, Munich, Germany and Pacific Northwest National Laboratory, Richland, USA	Wednesday	8:20 AM
How Can We Overcome Selectivity Limits in Alkane Oxidation?	**Annette Trunschke***, Inorganic Chemistry, Fritz-Haber-Institut der Max-Planck-Gesellschaft, Berlin, Germany	Wednesday	9:40 AM
Water Splitting: Reactant Switching, Reaction Mechanism, and Catalytic Activity	**Kazuhiro Takanabe***, Department of Chemical System Engineering, The University of Tokyo, Tokyo, Japan	Wednesday	10:40 AM
Active Site Dynamics in Catalysis	**Philippe Sautet***, Department of Chemical and Biomolecular engineering, University of California, Los Angeles, Los Angeles, CA	Wednesday	12:00 PM
Finding a Needle in a Haystack – Active Sites in Olefin Oligomerization Assessed By Operando Spectroscopy	**Angelika Brueckner***, Catalytic in-situ studies, Leibniz Institute for Catalysis, Rostock, Germany	Wednesday	2:00 PM
Plenary Lecture: Selectivity Control in Catalytic Transformations of C1 Molecules into Multicarbon Products https://youtu.be/9GjP13ksQCs	**Ye Wang***, College of Chemistry and Chemical Engineering, Xiamen University	Thursday	8:20 AM
Challenges and Opportunities in Developing New Zeolite-Based Catalysts	**Stacey I. Zones***, Chevron Energy Technology Company, Richmond, CA	Thursday	10:40 AM
Volcanos, Cliffs and Ways Around: Strategies to Break Linear Scaling Relationships	**Núria López***, Institute of Chemical Research of Catalonia, The Barcelona Institute of Science and Technology, Tarragona, Spain	Thursday	9:40 AM
Redox Properties of Copper Ions in Microporous Frameworks	**Silvia Bordiga***, Department of Chemistry, NIS Center and INSTM Reference Center, University of Turin, Turin, Italy	Thursday	2:40 PM
Industrial and Scientific Perspectives on Methanol Synthesis Catalysts	**Jens Sehested***, Chemical Catalyst, Haldor Topsoe A/S, Lyngby, Denmark	Thursday	3:50 PM
Innovation in the Chemical Industry: Novel Catalyst and Process Design for Sustainability and Carbon Circularity	**Sandeep Dhingra***, Dow	Thursday	4:30 PM
Elucidating the Origin of Catalyst Deactivation with Operando Spectroscopy and Microscopy	**Bert Weckhuysen***, Inorganic Chemistry and Catalysis, Debye Institute for Nanomaterials Science, Utrecht University, Utrecht, Netherlands	Friday	8:40 AM
Ni/CeO_2 As Catalyst for Biogas Reforming: The Effect of Calcination Temperature on Ni Crystallite Size and Carbon Formation	Renata Fonseca[1];Raimundo Crisostomo Rabelo-Neto[2];Rita Colman[3];**Fábio B. Noronha***[1] and Lisiane Mattos[4], (1)Catalysis and Chemical Processes, National Institute of Technology, Rio de Janeiro, Brazil, (2)Division of Catalysis, National Institute of Technology, Rio de Janeiro, Brazil, (3)Chemical Engineering Department, Fluminense Federal University, Niterói, Brazil, (4)Post Graduate Program in Sustainable Management Systems, Fluminense Federal University, Niterói, Brazil	Friday	9:40 AM

17th ICC Technical Program - Monday

MONDAY, June 15

Seaport ABC

MONDAY MORNING

Catalysis with Ordered Porous Materials 1

9:40 AM ***KEYNOTE*** **Cooperative catalysis for water splitting and CO_2 electroreduction. Xile Hu**, *Ecole Polytechnique Fédérale de Lausanne, Switzerland*.

10:20 AM Generation of Subnanometric Metal Clusters in Zeolites and Their Evolution Behavior Under Reaction Conditions. **Lichen Liu** and Avelino Corma, *Instituto de Tecnología Química, Spain*.

10:40 AM Recommendations for the Structural Characterization of Hierarchical Porous Catalysts. **Steven Lotter** and Katie Cychosz, *Anton Paar Quantatec, USA*.

11:00 AM Structure-Dependent Organization of Alkanols inside Zeolites Influences the Enthalpic and Entropic Contributions Towards Dehydration Kinetics. **Manish Shetty**, Huamin Wang, Feng Chen, Nicholas R. Jaegers, Oliver Y. Gutierrez, Donald M. Camaioni and Johannes Lercher, *Pacific Northwest National Laboratory, USA*.

11:20 AM Reversible and Dynamic T-O-T Breakage in Molecular Sieves Under Mild Hydrothermal Condition. **Tantan Sun**, Yingxu Wei and Zhongmin Liu, *Dalian Institute of Chemical Physics, Chinese Academy of Sciences, China*.

11:40 AM Implications of Partial Confinement in Exterior-Surface Pockets on Catalysis. Nicolás Grosso Giordano[1], Christian Schroeder[2], Hubert Koller[2], Stacey I. Zones[3] and **Alexander Katz**[1], *(1)University of California at Berkeley, USA, (2)University of Muenster, Germany, (3)Chevron, USA*.

12:00 PM Selective Epoxidation of Propylene to Propylene Oxide with Hydrogen Peroxide over Titanosilicate Catalysts. Jinpeng Yin, Hao Xu, Yejun Guan, Haihong Wu and **Peng Wu**, *East China Normal University, China*.

12:20 PM Improving Long Chain Hydrocarbon Yields in Dimethyl Ether Homologation over Cu/Mesoporous Hbea Catalysts. **Anh To**[1], Daniel Ruddy[1], Connor Nash[1], Daniel Dupuis[1] and Kunhao Li[2], *(1)National Renewable Energy Laboratory, USA, (2)W. R. Grace & Co., USA*.

MONDAY AFTERNOON

Catalysis for Biomass Conversion 1

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2:00 PM One-Pot Fractionated Catalytic Conversion of Lignocellulosic Biomass to Organic Acids and Cellulose Using Lindqvist-Type Polyoxometalates in Aqueous Solution. **Jakob Albert** and Dorothea Voss, *FAU Erlangen-Nürnberg, Germany*.

2:20 PM Efficient Conversion of Woody Biomass to Phenol. **Xianhong Ouyang**, Xiaoming Huang, Michael D. Boot and Emiel J. M. Hensen, *Eindhoven University of Technology, Netherlands*.

2:40 PM Reductive Depolymerization of Herbaceous Biomass. **Elvis Ebikade**, Nicholas Samuelwicz, Changqing Wu and Dionisios G. Vlachos, *University of Delaware, USA*.

3:00 PM Catalytic Conversion of Algal Residue for BIO-Bitumen Production. Laura Carolina Cárdenas Velandia[1], Anne Elisabeth Fontaine[2], Ilef Borghol[3], Chantal Lorentz[1], Bruno Bujoli[2], Christophe Geantet[4], Emmanuel Chailleux[3], Dorothée Laurenti[4] and **Clémence Queffélec**[2], *(1)IRCELYON, France, (2)University of Nantes, CEISAM laboratory, France, (3)Ifsttar/Centre de Nantes, France, (4)University of Lyon / CNRS, France*.

3:20 PM Lignin Depolymerization into Aromatic Monomers Using Supported Metal Catalysts in Water. **Aritomo Yamaguchi**[1], Naoki Mimura[1], Atsushi Segawa[2], Hitoshi Mazaki[2] and Osamu Sato[1], *(1)National Institute of Advanced Industrial Science and Technology (AIST), Japan, (2)JXTG Nippon Oil & Energy Corporation, Japan*.

3:40 PM Microwave-Assisted Depolymerization of Various Types of Waste Lignin over Two-Dimensional CuO/Bcn Catalysts. **Yang Cao**, *Fudan University, China*.

4:00 PM Catalytic Depolymerization of Cellulose and Chitin to Valuable Chemicals. **Atsushi Fukuoka**, *Hokkaido University, Japan*.

4:20 PM ***KEYNOTE*** **Biophenol from Lignin: an integrated economically feasible and sustainable lignocellulosic biorefinery and downstream processing. Bert F. Sels**, *KU Leuven, Belgium*.

17th ICC Technical Program - Monday

Seaport DE

MONDAY MORNING

Nitrogen Chemistry

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9:40 AM Effect of Pore Confinement of Alkali Amides on Low Temperature NH_3 Decomposition Catalysis. **Fei Chang**, Petra E. de Jongh and Peter Ngene, *Utrecht University, Netherlands*.

10:00 AM High Rate Lithium-Mediated Electrochemical Ammonia Production. **Nikifar Lazouski**, Kindle Williams, Zachary Schiffer, Minju Chung and Karthish Manthiram, *Massachusetts Institute of Technology, USA*.

10:20 AM Plasma-Catalytic Synthesis of Ammonia over Transition Metallic Catalysts at Room Temperature and Atmospheric Pressure. **Yaolin Wang**[1], Michael Craven[1], Paul Bryant[1], Jia Ding[2], Jun Huang[2] and Xin Tu[1], *(1)University of Liverpool, United Kingdom, (2)University of Sydney, Australia*.

10:40 AM ***KEYNOTE*** **The Low-T Oxidative Activation of NO over Cu-CHA SCR Catalysts: Theory, Transient Response Experiments and Kinetics. Isabella Nova**[1], Federica Gramigni[1], Nicole Daniela Nasello[1], Umberto Iacobone[1], Tommaso Selleri[1], Enrico Tronconi[1], Nicola Usberti[1], Roberta Villamaina[1], Kefa Cen[2], Xiang Gao[2], Wenshuo Hu[2], De Chen[3], Endre Fenes[3], Hongfei Ma[3] and Kumar Ranjan Rout[4], *(1)Politecnico di Milano, Italy, (2)Zhejiang University, China, (3)Norwegian University of Science and Technology, Norway, (4)SINTEF, Norway*.

11:20 AM DFT Analysis of Selectivity Trends in Electrocatalytic Reduction of NO on Pt and Pt-Sn Alloys. **Siddharth Deshpande** and Jeffrey Greeley, *Purdue University, USA*.

11:40 AM Modulating Selectivity of Nitrites Reduction Leveraging Polymer-Induced Solvation Effects. **Jimmy Faria**, Pengcheng Huang and Maria Enes da Silva, *University of Twente, Netherlands*.

12:00 PM Surface Dynamics of $Ru/Ba_{0.1}La_{0.45}Ce_{0.45}O_{1.68}$ during High-Temperature Reduction for Creating Active Ru Sites for Ammonia Synthesis. **Katsutoshi Nagaoka**, *Nagoya University, Japan*.

12:20 PM Efficient Ammonia Production over Ru Loaded on the Mixture of CaH_2 and BaO. **Masashi Hattori**, Tomofumi Tada, Masaaki Kitano, Michikazu Hara and Hideo Hosono, *Tokyo Institute of Technology, Japan*.

MONDAY AFTERNOON

C1 Chemistry 1

2:00 PM Ni-Al_2O_3 Catalysts for CO_2 methanation: Effect of La and Si in Catalyst Formulation. **Gabriella Garbarino**[1], Paola Riani[1], Maria Flytzani-Stephanopoulos[2] and Guido Busca[1], *(1)University of Genova, Italy, (2)Tufts University, USA*.

2:20 PM Inverse CeOx-Cu Catalysts for CO2 Hydrogenation. Hope Otor[1], Kapiamba Fabrice[1], Cheng-Han Li[2], Joerg R. Jinschek[2], Sridhar Viamajala[1] and **Ana Alba-Rubio**[1], *(1)University of Toledo, USA, (2)The Ohio State University, USA*.

2:40 PM Solar Energy-Driven Selective Activation of C−H Bond within an Alcohol and C−C Coupling into Diol. **Shunji Xie**, Haikun Zhang, Qinghong Zhang and Ye Wang, *Xiamen University, China*.

3:00 PM Promoting Catalytic Activity through H_2o Treatment-Induced Nanoparticles Restructuring. **Weixin Huang**[1], Aaron Johnston-Peck[2], Emmett Goodman[1] and Matteo Cargnello[1], *(1)Stanford University, USA, (2)National Institute of Standards and Technology, USA*.

3:20 PM Intermetallic-Oxide Interfaces – Proof of Catalytic Activity in Methanol Steam Reforming. **Nicolas Köwitsch**[1,2], Lukas Thoni[3], Benjamin Klemmed[3], Paul Paciok[4], Marc Heggen[4], Alexander Eychmüller[3] and Marc Armbrüster[1], *(1)Chemnitz University of Technology, Germany, (2)Max-Planck-Institut für Chemische Physik fester Stoffe, Germany, (3)Technische Universität Dresden, Germany, (4)Forschungszentrum Jülich, Germany*.

3:40 PM Ethylene Methoxycarbonylation Catalyzed By MoS_2 supported Pt single Atoms. An Wang[1], Yujing Ren[2], **Leilei Zhang**[2], Aiqin Wang[2] and Tao Zhang[1], *(1)Dalian Institute of Chemical Physics, Chinese Academy of Sciences, China, (2)Dalian Institute of Chemical Physics, CAS, China*.

4:00 PM Inverse ZnO/Cu(111) Catalysts for Methanol Synthesis, the Water-Gas Shift and CO Oxidation. **Jose A. Rodriguez**[1], Mausumi Mahapatra[1], Jindong Kang[1], Pedro Ramirez[2], Rebecca Hamlyn[1] and Sanjaya Senanayake[1], *(1)Brookhaven National Laboratory, USA, (2)Universidad Central de Venezuela, Venezuela (Bolivarian Republic of)*.

4:20 PM Activation and Deactivation of Supported Gold Catalysts in the Low-Temperature Water–Gas Shift Reaction. **James H. Carter** and Graham J. Hutchings, *Cardiff University, United Kingdom*.

4:40 PM Heterogeneous Cu-Based Catalysts for Halide-Free Carbonylation of Methanol to Acetates. **Chaoli Tong**, Jiachang Zuo, Danlu Wen, Linmin Ye and Youzhu Yuan, *Xiamen University, China*.

17th ICC Technical Program - Monday

Seaport FGH

MONDAY MORNING

Catalysis with Oxides 1

9:40 AM Selecting Rate Limiting Step By Specifying Exposed Facets on Well-Defined Ceria Nanoshapes. Gengnan Li, Bin Wang and **Daniel Resasco**, *University of Oklahoma, USA*.

10:00 AM Catalysis By Well-Defined Oxide Nanostructures: From Atomic-Scale Properties to in-Situ Reaction Dynamics. **Fan Yang**, *Dalian Institute of Chemical Physics, Chinese Academy of Sciences, China*.

10:20 AM Sulfated Zirconia Supported Fe Catalyst: A Novel Approach for Ethane Activation. Ashraf Abedin, Srikar Bhattar and **James J. Spivey**, *Louisiana State University, USA*.

10:40 AM Hydrogen on and in Ceria and Hydrogenation of Unsaturated Hydrocarbons. **Hans-Joachim Freund**, *Fritz Haber Institute of the Max Planck Society, Germany*.

11:00 AM Synthesis of Dmc from CO_2 and Methanol over CeO_2 Nanoparticle: The Role of Exposed Planes on the Catalytic Activity and Selectivity. **Aryane Azevedo Marciniak**[1], Fábio Henrique Júnior[1], Adriana Fernandes Félix de Lima[2], Carla R. Ramos[2], Odivaldo C. Alves[3], Lucia Gorenstin Appel[2] and Claudio José de Araújo Mota[1], *(1)Universidade Federal do Rio de Janeiro, Brazil, (2)Instituto Nacional de Tecnologia, Brazil, (3)Universidade Federal Fluminense, Brazil*.

11:20 AM Toward Structure-Activity Relationships in CO_2 Activation: Probing the Surface State of Pure ZrO_2 Catalysts. Maxime Riviere[1], Elodie Wan[1], Arnaud Travert[2], Françoise Quignard[1], Didier Tichit[1], **Nathalie Tanchoux**[1] and Hugo Petitjean[1], *(1)CNRS-UM-ENSCM, France, (2)Normandie Univ, ENSICAEN, CNRS, LCS, France*.

11:40 AM A Kinetic Study of Methane Combustion over Ni/CeO_2 Based Catalysts. Junjie Chen[1], Benjamin Carlson[1], Jae-Soon Choi[2], Zhenglong Li[2], Todd J. Toops[2] and **Eleni A. Kyriakidou**[1], *(1)University at Buffalo, USA, (2)Oak Ridge National Laboratory, USA*.

12:00 PM ***KEYNOTE*** **Photocatalysis and Electrocatalysis for Solar Fuel Production:Fundamental and Practice. Can Li**, *Dalian Institute of Chemical Physics, Chinese Academy of Sciences, China*.

MONDAY AFTERNOON

Emerging and Cross-Cutting Topics

2:00 PM ***KEYNOTE*** **'Carbo'Chemicals in the Circular Economy. jean-Paul Lange**, *Shell Global Solutions B.V., Netherlands*.

2:40 PM Full Aerobic Oxidation of S Compounds with Very Small Ag Nanoclusters. **David Buceta** and Manuel Arturo López Quintela, *University of Santiago de Compostela, Spain*.

3:00 PM How Do We Enable Benchmarking in the Catalysis Community?. Anne Starace[1], Carrie Farberow[1], Tuong Bui[1], Calvin Mukarakate[1], Kristiina Iisa[1], Richard French[1], Frederick G. Baddour[1], Kurt Van Allsburg[2] and **Joshua A. Schaidle**[1], *(1)National Renewable Energy Laboratory, USA, (2)National Renewable Energy Lab, USA*.

3:20 PM High-Temperature Heterogeneous Organometallic Catalysts Stabilized By Carbon Monoxide. **Fuat E. Celik**, Boris Sheludko and Alan Goldman, *Rutgers, The State University of New Jersey, USA*.

3:40 PM Combining Photocatalysis and Optical Fiber Technology for Sustainable Hydrogen Production. **Matthew Potter**, Robert Raja and Pier Sazio, *University of Southampton, United Kingdom*.

4:00 PM The 'Electrochemical Leaf' – a Nanoconfined Enzyme Cascade Electrode for Nicotinamide Cofactor Regeneration and Organic Synthesis. **Bhavin Siritanaratkul**[1,2], Clare Megarity[2] and Fraser Armstrong[2], *(1)University of Tokyo, Japan, (2)University of Oxford, United Kingdom*.

4:20 PM Inorganic Electrides for Advanced Catalysis Applications. **Tian-Nan Ye** and Hideo Hosono, *Tokyo Institute of Technology, Japan*.

4:40 PM Bond Energies of Adsorbed Intermediates to Metal Surfaces Correlate with H-Ligand and H-Surface Bond Energies and Electronegativities. **Spencer James Carey**[1], Wei Zhao[2] and Charles T. Campbell[3], *(1)Fritz-Haber-Institut der Max-Planck-Gesellschaft, Germany, (2)Shenzhen University, China, (3)University of Washington, USA*.

17th ICC Technical Program - Monday

Harbor ABC

MONDAY MORNING

Catalyst Synthesis and Characterization 1

9:40 AM Photoexcitation Affords Room Temperature Nanoparticles Segregation on Perovskite. Zhou Chen[1], Guangming Yang[2], Gang Wan[3], Hua Zhou[3], Jian Chen[4] and **Yifei Sun**[1], *(1)Xiamen University, China, (2)Nanjing Tech University, China, (3)Argonne National Lab, USA, (4)Nanotechnology Research Centre, Canada*.

10:00 AM Atomically Dispersed Fe-N/C Catalysts of the New Benchmark Performance for Oxygen Reduction Reaction Synthesized By Selective Microwave Annealing. **Woo Yeong Noh**[1] and Jae sung Lee[2], *(1)Ulsan National Institute of Science Technology (UNIST), Korea, Republic of (South), (2)Ulsan National Institute of Science and Technology, Korea, Republic of (South)*.

10:20 AM Microstructure-Reactivity Relationships in the Electrocatalytic Oxygen Evolution Reaction of Cobalt Iron Oxide Catalysts Prepared By Microemulsion-Assisted Co-Precipitation. **Anna Rabe**[1], Klaus Friedel Ortega[1], Felix Haase[2], Arno Bergmann[2], Beatriz Roldan Cuenya[2] and Malte Behrens[1], *(1)University of Duisburg-Essen, Germany, (2)Fritz-Haber-Institute of the Max Planck Society, Germany*.

10:40 AM Controlling Nucleation of PtPd Clusters Via Trapped Single Atoms for Water-Tolerant Methane Oxidation Catalyst. **Haifeng Xiong**[1], Deepak Kunwar[2], Carlos Eduardo Garcia Vargas[3], Jeffrey T. Miller[4], Wang Yong[3], Stanley Chou[5] and Abhaya Datye[2], *(1)Xiamen University, China, (2)University of New Mexico, USA, (3)Washington State University, USA, (4)Purdue University, USA, (5)Sandia National Laboratory, USA*.

11:00 AM Supported Molybdenum Carbide for Succinic Acid Hydrogenation. Marwa abou-Hamdan[1], Aleksandra Lilic[1], Margarita Vecino-Mantilla[2], Clemence Nikitine[2], Lea Vilcocq[2], Mohamad Jahjah[3], **Catherine Pinel**[4] and Noémie Perret[4], *(1)CNRS / UCBL, France, (2)CNRS / CPE Lyon / UCBL, France, (3)Université libanaise / Faculté des sciences, Lebanon, (4)CNRS / Université Claude Bernard Lyon1 / Université de LYON, France*.

11:20 AM Effect of Acidity in Ultradispersed MoS_2 - Silica-Alumina Catalysts for Slurry-Phase Hydroconversion. **Andres Moreno**, Juliana Sanchez and Fanor Mondragon, *Universidad de Antioquia, Colombia*.

11:40 AM Developing New Fischer-Tropsch Catalyst Formulations Based on Deactivation Learnings. **Stuart Soled**[1], Sal Miseo[1], Sebastian Reyes[2], Chris Kliewer[1], Sara Yacob[1] and Alyssa Love[1], *(1)ExxonMobil Research and Engineering, USA, (2)deceased, USA*.

12:00 PM Metal-Oxide Interactions in Heterogeneous Catalysis. Insights from Spin Density Studies of Open-Shell Single Atom Catalysts. **Mario Chiesa**[1], Enrico Salvadori[1], Matteo Signorile[2] and Elio Giamello[1], *(1)University of Turin, Italy, (2)Università di Torino, Italy*.

12:20 PM Determination of Structure for Copper Oxide Clusters Using Supervised Machine Learning. **Yang Liu**[1,2], Nicholas Marcella[2] and Anatoly Frenkel[2,3], *(1)stony brook university, USA, (2)Stony Brook University, USA, (3)Brookhaven National Laboratory, USA*.

MONDAY AFTERNOON

Catalyst Synthesis and Characterization 2

2:00 PM Unprecedented Catalysis of Alkali Metal Single Sites in Zeolite Pores Replacing Transition Metal Catalysis for Selective C-H Activation. **Takehiko Sasaki**[1] and Yasuhiro Iwasawa[2], *(1)The University of Tokyo, Japan, (2)The University of Electro-Communications, Japan*.

2:20 PM Altering Catalyst Activity through Controlled Oxide Overcoats. **Justin M. Notestein**, M. Alexander Ardagh, Andrew T.Y. Wolek, Huan Yan and Peter C. Stair, *Northwestern University, USA*.

2:40 PM Creating Heterogeneous Asymmetric Catalysts By Chiral Au Nanoclusters on Surfaces. **Vera Truttmann**[1], Philipp Hans[2], Noelia Barrabes[1] and Guenther Rupprechter[1], *(1)Technische Universität Wien, Austria, (2)University of Trento, Italy*.

3:00 PM Direct Synthesis of in-Situ Chirally Modified Palladium Nanocrystals without Capping Agents and Their Application in Heterogeneous Enantioselective Hydrogenations. Xiuyun Gao, **Xueying Chen**, Zhen Hua Li and Heyong He, *Fudan University, China*.

3:20 PM Development of High Surface Area Corundum By Mechanochemistry for the Design of Hydrothermally Robust Fischer-Tropsch Synthesis Catalyst. **Amol Amrute**[1], Kai Jeske[1], Zbigniew Łodziana[2], Hannah Schreyer[1], Gonzalo Prieto[1], Claudia Weidenthaler[1] and Ferdi Schüth[1], *(1)Max-Planck-Institut für Kohlenforschung, Germany, (2)INP, Polish Academy of Sciences, Poland*.

3:40 PM Origin of Synergistic Effects in Bicomponent Catalysts for Selective Hydrogenation Reaction. **Zhe Gao** and Yong Qin, *Institute of Coal Chemistry, Chinese Academy of Sciences, China*.

4:00 PM Engineering Facile Regeneration through Atom Trapping for Alkane Dehydrogenation Catalysts. **Deepak Kunwar**[1], Griffin Canning[1], Jeffrey T. Miller[2], Hua Guo[1] and Abhaya Datye[1], *(1)University of New Mexico, USA, (2)Purdue University, USA*.

4:20 PM Metal Nanoparticles Intercalated in Mesoporous Silica As a Paradigm to Impart Robustness. **Ryan Richards**[1,2], Brian Trewyn[1,2] and Svitlana Pylypenko[1,2], *(1)Colorado School of Mines, USA, (2)National Renewable Energy Laboratory, USA*.

4:40 PM Catalytic Performance of CuO_x NP_S Obtained By Pulsed Laser Ablation. **Daria Goncharova**, Tamara Kharlamova, Olesya Reutova, Olga Vodyankina and Valery Svetlichnyi, *Tomsk State University, Russian Federation*.

17th ICC Technical Program - Monday

Harbor DEF

MONDAY MORNING

Supported Metals 1

9:40 AM Platinum Nanoparticles Alloyed with Rare Earth Metals in Mesoporous Zeolite for Development of Catalytic Materials. **Ryong Ryoo**[1], Jaeheon Kim[1], Seung Won Han[1,2], Jeong-Chul Kim[1], Hongjun Park[1,2], Jongho Han[1,2], Changbum Jo[1], Hye Sun Shin[1] and Jae Won Shin[1], *(1)IBS, Korea, Republic of (South), (2)KAIST, Korea, Republic of (South)*.

10:00 AM Making Organonitrogen Chemicals Via Heterogeneous Catalysis. **Ning Yan**, *National University of Singapore, Singapore*.

10:20 AM Electrostatic Stabilization of Single-Atom Catalysts By Ionic Liquids. **Shipeng Ding**[1], Yalin Guo[2], Hiroyuki Asakura[3], Min Gao[4], Botao Qiao[2], Tao Zhang[2] and Ning Yan[1], *(1)National University of Singapore, Singapore, (2)Dalian Institute of Chemical Physics, CAS, China, (3)Kyoto University, Japan, (4)Hokkaido University, Japan*.

10:40 AM Tuning the Activity for CO Oxidation of MgO-Supported Atomically Dispersed Platinum Catalysts By Controlling Metal–Support Bonding. Yizhen Chen[1,2], Shaohong Cao[3], Chia-Yu Fang[2], Miaofang Chi[3], Coleman Kronawitter[2], Ambarish Kulkarni[2] and **Bruce C. Gates**[2], *(1)University of Science and Technology of China, China, (2)University of California, Davis, USA, (3)Oak Ridge National Laboratory, USA*.

11:00 AM Fine-Tuning the Coordination Environment of Single-Atom Catalysts. Yujing Ren, Leilei Zhang, **Aiqin Wang** and Tao Zhang, *Dalian Institute of Chemical Physics, Chinese Academy of Sciences, China*.

11:20 AM Heteroatom Single-Site Pairs for Bifunctional CO-Insertion Catalysis. Insoo Ro[1], Ji Qi[1], Mingjie Xu[2], George W. Graham[3], Xiaoqing Pan[2] and **Phillip Christopher**[1], *(1)University of California Santa Barbara, USA, (2)University of California, Irvine, USA, (3)University of California Irvine, USA*.

11:40 AM Atomic-Scale Observation of Bimetallic Au-CuO_x nanoparticles and Their Interfaces for Activation of CO Molecules. Changhai Liang and **Jingjie Luo**, *Dalian University of Technology, China*.

12:00 PM Controlling Metal-Support Interactions on Ru/MO_x: Approach to Engineer Highly Active and Stable Methanation Catalysts. **Shilong Chen**, Ali Abdel-Mageed, Sebastian Cisneros and R.Jürgen Behm, *Ulm University, Germany*.

12:20 PM Role of Iodide Promoters in Homogenous and Heterogeneous Hydroxy-Carbonylation of Ethylene over $Mo(CO)_6$ Catalysts. **Beata Kilos-Reaume**[1], Chieh-Chao Yang[2], David G. Barton[1], Eric Weitz[2] and Justin M. Notestein[2], *(1)Dow, USA, (2)Northwestern University, USA*.

MONDAY AFTERNOON

Supported Metals 2

2:00 PM The Role of the Dopant Metal Atom in Au-Based Single-Atom Alloys. **Georgios Giannakakis**, Nathaniel Eagan, E. Charles H. Sykes and Maria Flytzani-Stephanopoulos, *Tufts University, USA*.

2:20 PM Pocket-like Active Site of Rh_1/MoS_2 Single-Atom Catalyst for Selective Hydrogenation of Crotonaldehyde to Crotyl Alcohol. **Yang Lou**[1,2], Yongping Zheng[3,4], Xu Li[2], Jia Xu[2], Kyeongjae Cho[3] and Jingyue Liu[2], *(1)Jiangnan University, China, (2)Arizona State University, USA, (3)University of Texas at Dallas, USA, (4)Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China*.

2:40 PM Strong Metal-Support Interaction (SMSI): From Oxide to Carbide and Nitride Supports. **Qiang Fu** and Yanxiao Ning, *Dalian Institute of Chemical Physics, CAS, China*.

3:00 PM Geometrical Structure of the Gold–Iron(III) Oxide Interfacial Perimeter. **Yan Zhou**, Xuejiao Wei, Chuanchuan Jin and Wenjie Shen, *Dalian Institute of Chemical Physics, Chinese Academy of Sciences, China*.

3:20 PM Multifunctional Active Sites Developed By Well-Defined Trimetallic Alloys. **Shinya Furukawa**[1,2,3], Jaewan Jeon[1], Yuki Nakaya[1] and Ken-ichi Shimizu[1,2], *(1)Hokkaido University, Japan, (2)Kyoto University, Japan, (3)Japan Science and Technology Agency, Japan*.

3:40 PM Atomically Precise Design of Heterogeneous Catalysts for Enhanced Parahydrogen Hyperpolarization - Potential Applications in Magnetic Resonance Imaging. Bochuan Song[1], Diana Choi[1], Yan Xin[2], Clifford R. Bowers[1] and **Helena Hagelin-Weaver**[1], *(1)University of Florida, USA, (2)Florida State University, USA*.

4:00 PM New Strategy for Preparation of Stable Metal Catalysts: Fixation of Metal Nanoparticles with Zeolite Crystals. Liang Wang and **Feng-Shou Xiao**, *Zhejiang University, China*.

4:20 PM Controlling Catalysis on Oxide-Supported Metals with Bifunctional Organic Monolayers. Jing Zhang and **Will Medlin**, *University of Colorado, USA*.

4:40 PM Surface Engineering of Earth-Abundant Fe-Based Catalysts for Selective C-O Bond Cleavage of Phenolics in Liquid Phase. **Jianghao Zhang**[1], Junming Sun[1], Libor Kovarik[2], Mark Engelhard[2], Lei Du[3], Berlin Sudduth[1], Houqian Li[1] and Yong Wang[1], *(1)Washington State University, USA, (2)Pacific Northwest National Laboratory, USA, (3)Harbin Institute of Technology, China*.

17th ICC Technical Program - Monday

Harbor GHI

MONDAY MORNING

Emerging and Cross-Cutting Topics

9:40 AM Understanding and Controlling Solvent Effects in Acid and Metal Catalyzed Reaction Systems. **Matthew Neurock**[1], Chotitath Sanpitakseree[1], Benginur Demir[2,3], Max Mellmer[3,4] and James A. Dumesic[4], *(1)University of Minnesota - Twin Cities, USA, (2)University of Wisconsin, USA, (3)Great Lakes Bioenergy Research Center, USA, (4)University of Wisconsin - Madison, USA*.

10:00 AM The Electrocatalytic Biorefinery: Case Studies on Challenges and Opportunities in Monomer and Bio(electro)Fuel Production. F. Joschka Holzhäuser, Jerome Meyers, Joel B. Mensah, Guido Creusen and **Regina Palkovits**, *RWTH Aachen University, Germany*.

10:20 AM Surface Protonics in an Electric Field Promotes Catalysis Even at Low Temperatures. **Yasushi Sekine**, *Waseda University, Japan*.

10:40 AM Hydrogenation of Alkynes: The Contribution of Absorbed Hydrogen in $ErNi_{5-x}Al_x$ Alloys. **Ryota Tsukuda**[1], Takayuki Kojima[1], Satoshi Kameoka[1], Chikashi Nishimura[2] and An-Pang Tsai[1], *(1)Tohoku University, Japan, (2)National Institute for Materials Science, Japan*.

11:00 AM Controlling Hydrogenation Rates in Aqueous Environments Via Applied Potential and Brønsted Acidity. **Oliver Y. Gutierrez**[1], Udishnu Sanyal[1], Laura C. Meyer[1], Guanhua Cheng[2], Katherine Koh[3], Andreas Jentys[2], Donald M. Camaioni[1] and Johannes Lercher[1], *(1)Pacific Northwest National Laboratory, USA, (2)Technical University of Munich, Germany, (3)Pacific, USA*.

11:20 AM Screening of Heusler Alloys: Popular Ternary Intermetallics. **Takayuki Kojima**, Takuya Koganezaki, Satoshi Kameoka and An-Pang Tsai, *Tohoku University, Japan*.

11:40 AM Accelerating Catalyst Discovery Via Ab Initio Machine Learning. **Hongliang Xin**, *Virginia Polytechnic Institute and State University, USA*.

12:00 PM The Apparent Rate-Determining Step of Composite Reactions: Insights from Transition-State Theory and Degrees of Rate Control. **Brandon Foley** and Aditya Bhan, *University of Minnesota, Twin Cities, USA*.

12:20 PM Nuclear Spins As Novel Mechanistic Tracers in Catalysis. Kirill V. Kovtunov[1], Aleksandr Stakheev[2] and **Igor V. Koptyug**[1], *(1)International Tomography Center, SB RAS, Russian Federation, (2)N.D. Zelinsky Institute of Organic Chemistry, RAS, Russian Federation*.

MONDAY AFTERNOON

Catalysis with Oxides 2

2:00 PM Can We Alter the Temperature Regime of Catalysis By Surface Modification ?. **Chinnakonda Gopinath**, *National Chemical Laboratory, India*.

2:20 PM Removal of Hydrogen Poisoning By Polar MgO Support Under Local Electric Field for Low Pressure Ammonia Synthesis. **Simson Wu** and Edman Shik-chi Tsang, *University of Oxford, United Kingdom*.

2:40 PM Variation in in_2O_3 Crystal Phase Alters Catalytic Performance Toward the Reverse Water Gas Shift Reaction. **Guanghui Zhang**[1], Jianyang Wang[1], Chun-Yen Liu[2], Thomas Senftle[2], Jie Zhu[1], Xinwen Guo[1] and Chunshan Song[3], *(1)Dalian University of Technology, China, (2)Rice University, USA, (3)Pennsylvania State University, USA*.

3:00 PM Thermodynamic Activity Coefficients Describe the Catalytic Performance of Supported Polyoxometalate Catalysts. **Mark Barteau**[1] and Trenton Wilke[2], *(1)Texas A&M University, USA, (2)Sironix Renewables, USA*.

3:20 PM Novel and Highly Stable Apatite Supported MoO_3 Catalysts for Selective Methanol Oxidation to Formaldehyde. **Joachim Thrane**[1], Christopher F. Elvebakken[1], Lasse S. Ladefoged[1], Uffe V. Mentzel[2], Max Thorhauge[2], Anker D. Jensen[1] and Martin Høj[1], *(1)Technical University of Denmark, Denmark, (2)Haldor Topsøe A/S, Denmark*.

3:40 PM Monodispersed $(MgO)_1$ and $(MoO_3)_3$ Clusters on Anatase $TiO_2(101)$ for Model Catalytic Studies. Nassar Doudin, Pradeep Kumar Gurunathan, Gregory Collinge, Malsoon Lee, Vassiliki-Alexandra Glezakou, Roger Rousseau and **Zdenek Dohnalek**, *Pacific Northwest National Laboratory, USA*.

4:00 PM From Ultra High Vacuum to Ambient Conditions: Water on Indium Oxide. **Hao Chen**, Matthias Blatnik, Francesca Mirabella, Giada Franceschi, Michele Riva, Michael Schmid, Ulrike Diebold and Margareta Wagner, *Institute of Applied Physics, TU Wien, Austria*.

4:20 PM Isobutane Dehydrogenation over Supported Molybdenum Oxides. **Emily Cheng** and Justin M. Notestein, *Northwestern University, USA*.

4:40 PM CO_2 Hydrogenation over Sodium Titanates 1D Nanostructures. **Jorge Noé Diaz de León Hdez**[1], Jassiel Rodriguez[1], Joel Rojas[1], Yasmin Esqueda[1], Luis Cardenas[2], Ramesh Kumar Chowdari[1], Gabriel Alonso[3] and Sergio Fuentes-Moyado[1], *(1)Universidad Nacional Autónoma de México, Centro de Nanociencias y Nanotecnología, Mexico, (2)University of Lyon / CNRS, France, (3)Centro de Nanociencias y Nanotecnologia, UNAM, Mexico*.

17th ICC Technical Program - Monday

Coronado AB

MONDAY MORNING

Catalysis for Biomass Conversion 2

9:40 AM Supported Precious Metal Catalysts for the Synthesis of Bio-Based Compounds As Sustainable Resource. **Gisa Meissner**[1], Hendrik Spod[1], Raphaela Süß[2] and Birgit Kamm[2], *(1)Heraeus Deutschland GmbH & Co. KG, Germany, (2)Wood K plus, Austria*.

10:00 AM Conversion of Biomass-Derived Glutamic Acid into 2-Pyrrolidone on Supported Ru Catalyst in Hydrogen Atmosphere. **Satoshi Suganuma**, Akihiro Otani, Etsushi Tsuji and Naonobu Katada, *Tottori University, Japan*.

10:20 AM Selective Hydrogenation of Biogenic Carboxylic Acids in Water Using Pt-Mo Catalysts. **Tomoo Mizugaki**, Katsumasa Sakoda, Hiroki Kondo and Takato Mitsudome, *Osaka University, Japan*.

10:40 AM Circular Aromatics from Waste Water By Catalytic Ketonization and Aromatization of Volatile Fatty Acids. Egor Fufachev, Jochem van Duin, Bert Weckhuysen and **Pieter C. A. Bruijnincx**, *Utrecht University, Netherlands*.

11:00 AM The Role of Poisons during Hydrodeoxygenation of Renewable Oils. Prakhar Arora[1], Henrik Rådberg[2], Eva Lind Grennfeldt[2], Derek Creaser[1] and **Louise Olsson**[1], *(1)Competence Centre for Catalysis and Chemical Engineering,Chalmers University of Technology, Sweden, (2)Preem AB, Sweden*.

11:20 AM Selective Reduction of Carboxylic Acids to Aldehydes over Promoted MoO_3 Catalysts. **Laura A. Gomez**, Mallikharjuna. R Komarneni, Jennifer A. Gutierrez and Steven P. Crossley, *University of Oklahoma, USA*.

11:40 AM Single-Step Conversion of Fatty Acid to Olefins Via Ketonization-Hydrogenation-Dehydration over Pt-Loaded Alkali Hexatitanate Catalysts. Pratya Promchana, Tosapol Maluangnont and **Tawan Sooknoi**, *King Mongkut's Institute of Technology Ladkrabang, Thailand*.

12:00 PM Kinetics of Acylation of 2-Methylfuran with Fatty Acid Anhydride. **Ankita V. Naik**[1,2], Kristeen E. Joseph[1,2], M. Alexander Ardagh[1,2], Manish Shetty[3] and Paul J. Dauenhauer[1,2], *(1)University of Minnesota, USA, (2)University of Delaware, USA, (3)Pacific Northwest National Laboratory, USA*.

12:20 PM Promoting Oxygenate Pathways on Pt Catalysts for Biomass Upgrading. **Joshua Gopeesingh** and Jesse Bond, *Syracuse University, USA*.

MONDAY AFTERNOON

Catalysis with Ordered Porous Materials 2

2:00 PM Surface-Enhanced Techniques to Reduce Mass Transport Restrictions of Zeolite Catalysts. **Heng Dai**[1], Wen Liu[2], Jakob Claret[1], ChoongSze Lee[3], Jeremy C. Palmer[1], Bert Weckhuysen[4], Xiaodong Zou[5], Paul J. Dauenhauer[3], Xiujie Li[2] and Jeffrey D. Rimer[1], *(1)University of Houston, USA, (2)Dalian Institute of Chemical Physics, China, (3)University of Minnesota, USA, (4)Utrecht University, Netherlands, (5)Stockholm University, Sweden*.

2:20 PM Novel Methods for Making Hierarchical Zeolites: Characterisations and Catalytic Applications. **Rongxin Zhang** and Xiaolei Fan, *The University of Manchester, United Kingdom*.

2:40 PM Porous Extruded Zeolites for Methanol-to-Hydrocarbons Reaction. Rogéria Bingre[1], Patrick Nguyen[2] and **Benoît Louis**[1], *(1)University of Strasbourg, France, (2)Saint-Gobain C.R.E.E., France*.

3:00 PM Experimental and Theoretical Investigation of Siliceous Vanadium-Containing BEA Zeolites and Their Application in Odh of Propane. **Malgorzata Smolilo**[1], Katarzyna Samson[1], Malgorzata Ruggiero[1], Agnieszka Drzewiecka-Matuszek[1], Dorota Rutkowska-Zbik[1], Laetitia Valentin[2], Averseng Frederic[3], Yannick Millot[4] and Stanislaw Dzwigaj[3], *(1)Jerzy Haber Institute of Catalysis and Surface Chemistry, PAS, Poland, (2)Sorbonne Universités, UPMC Univ Paris 06, CNRS, UMR 7197, Laboratoire de Réactivité de Surface, France, (3)Laboratoire de Réactivité de Surface, Sorbonne Université-CNRS, UMR 7197, France, (4)Sorbonne Université, France*.

3:20 PM The Role of Ordered Porous Materials in CO_2 Utilization. **Jorge Gascon**, *King Abdullah University of Science & Technology, Saudi Arabia*.

3:40 PM Fabrication of Hierarchical Nano-Mordenite Ball and Its Catalytic Performance in Heavy Aromatics Transformation. **Weiyi TONG**, *Shanghai Research Institute of Petrochemical Technology, SINOPEC, China*.

4:00 PM Correlating the Atomic-Level Compositions, Structures, and Aromatization Properties of Pt-KL Zeolite Catalysts. **Tsatsral Battsengel**[1], Joseph Bergmeister[2], Gabriela Alvez-Manoli[2], Sikander Hakim[2], Steven Lim[2], Masud Monwar[2], Cori Demmelmaier-Chang[2] and Bradley Chmelka[1], *(1)University of California Santa Barbara, USA, (2)Chevron Phillips Chemical Company LP, USA*.

4:20 PM Transition Metal Sulfides on Zeolite Catalysts for Selective Ring Opening. Nelly Catherin[1], Elodie Blanco[1], **Dorothée Laurenti**[1], Laurent Piccolo[1], Vincenzo Calemma[2] and Christophe Geantet[1], *(1)University of Lyon / CNRS, France, (2)Eni SpA, Italy*.

4:40 PM Transport of Aromatic Molecules in ZSM-5 - Role of Surface Acidity on the Pore Entrance Kinetics. Martin Baumgaertl, **Andreas Jentys** and Johannes A. Lercher, *Technische Universität München, Germany*.

17th ICC Technical Program - Monday

Coronado CD

MONDAY MORNING

C-C and C-Heteroatom Bond Formation

9:40 AM Production of Olefins and Aromatics from Syngas over Fe_5C_2-Based Catalyst. **Ding Ma**, *Peking University, China*.

10:00 AM *Operando* Computational Catalysis for Fischer-Tropsch Synthesis:Shape, Structure, Activity and Selectivity of Cobalt Catalysts. Kasun Gunasooriya and **Mark Saeys**, *Ghent University, Belgium*.

10:20 AM Effect of Different Zeolitic Environments on the Performance of Ni-Clusters in Butene Dimerization. **Laura Löbbert**[1], Ricardo Bermejo de Val[1] and Johannes Lercher[1,2], *(1)Technical University of Munich, Germany, (2)Pacific Northwest National Laboratory, USA*.

10:40 AM Atomically Dispersed Pd Catalyst for Practical and Efficient Carbon–Carbon Bond Formation Reaction Under Mild Phosphine-Free Conditions. Guodong Ding and **Qiang Zhang**, *Washington State University, USA*.

11:00 AM Concerted Catalysis By Adjacent Palladium and Gold in Alloy Nanoparticles for [2+2+2] Cycloaddition of Alkynes. **Hiroki Miura**, Yumi Tanaka, Karin Nakahara and Tetsuya Shishido, *Tokyo Metropolitan University, Japan*.

11:40 AM Modulating Selectivity of Nitrites Reduction Leveraging Polymer-Induced Solvation Effects. **Jimmy Faria**, Pengcheng Huang and Maria Enes da Silva, *University of Twente, Netherlands*.

11:20 AM Active Sites in Alkali-Promoted Molybdenum Sulfide Catalysts for Methanethiol Synthesis from Syngas and Hydrogen Sulfide: An IR Spectroscopy Study. **Miao Yu**, Nikolay Kosinov, Ming-wen Chang and Emiel J. M. Hensen, *Eindhoven University of Technology, Netherlands*.

11:40 AM Base Catalysis with Nitrogen-Doped Graphene for Henry Couplings. Natalia Candu[1], Andrada Simion[1], Simona Coman[1], Cristina Bucur[2], Hermenegildo Garcia[3] and **Vasile Parvulescu**[1], *(1)University of Bucharest, Romania, (2)National Institute of Materials Physics, Romania, (3)Universitat Politécnica de Valencia, Spain*.

12:00 PM Direct Catalytic Transformations of Triglycerides to Amides, Amines, and Nitriles. **Ken-ichi Shimizu**, *Hokkaido University, Japan*.

12:20 PM Direct Synthesis of Asymmetric Secondary Amines from N-Alkylation of Nitriles with Alcohols By Heterogeneous Catalysis. **Carlos Apesteguia**, Dario Segobia and Andres Trasarti, *INCAPE, Argentina*.

MONDAY AFTERNOON

Heteroatom Removal

2:00 PM Recent Insights on Ultra-Deep Sulfur Removal from Heavy Gas Oils. **Sergio Fuentes-Moyado**, *Universidad Nacional Autónoma de México, Centro de Nanociencias y Nanotecnología, Mexico*.

2:20 PM Intermetallic Silicide As Hydrodesulfurization Catalyst. **Xiao Chen** and Changhai Liang, *Dalian University of Technology, China*.

2:40 PM Co-Processing Bio-Crudes with Petroleum Gas Oil in Hydrotreating: Kinetics of Heteroatom Removal and Incorporation of Biogenic Carbon in Produced Fuels. **Huamin Wang**, Daniel Santosa, Cheng Zhu, Igor Kutnyakov and Matthew Flake, *Pacific Northwest National Laboratory, USA*.

3:00 PM Strategies to Quantify and Maximize Active Sites in Hydrogen-Addition Reactions on Transition Metal Sulfides. **Hui Shi**[1], Manuel Wagenhofer[1], Wanqiu Luo[1], Ferdinand Vogelgsang[1], Sylvia Albersberger[1], Oliver Y. Gutierrez[1] and Johannes A. Lercher[1,2], *(1)Technische Universität München, Germany, (2)Pacific Northwest National Laboratory, USA*.

3:20 PM Conversion of Heavy Gas Oil into Ultra-Low-Sulfur, Nitrogen and Aromatic Middle Distillate Fuel over a Niwru/TiO_2-γAl_2O_3 Catalyst. **Ricardo Prada Silvy**, *Applied Science & Technology, USA*.

3:40 PM Transformation of Molybdenumoxide in Bulk NiMo Catalyst into the Multi-Walled MoS_2 & Nano-Bricks Containing MoS_2 Nanotubes. **Ramesh Kumar Chowdari**, Jorge Noé Diaz de León and Sergio Fuentes-Moyado, *Universidad Nacional Autónoma de México, Centro de Nanociencias y Nanotecnología, Mexico*.

4:00 PM Mesoporous Multifunctional Catalysts for Oxidative Desulfurization. **Ajay Dalai**, Sundaramurthy Vedachalam and Philip Effah Boahene, *University of Saskatchewan, Canada*.

4:20 PM Low-Temperature Hydrodeoxygenation Using Polyoxometalate-Supported Pd_1 Single-Atom Catalysts. **Max J. Hülsey**[1], Geng Sun[2], Zili Wu[3], Philippe Sautet[2] and Ning Yan[1], *(1)National University of Singapore, Singapore, (2)University of California, Los Angeles, USA, (3)Oak Ridge National laboratory, USA*.

4:40 PM A Systematic Analysis of the Promotion of Hydrodesulfurization By Aromatics, Nitrogen Heterocycles, and Olefins. **Edgar M. Morales-Valencia** and Victor Baldovino Medrano, *Universidad Industrial de Santander, Colombia*.

17th ICC Technical Program - Tuesday

TUESDAY, June 16

Seaport ABC

TUESDAY MORNING

Catalysis for Biomass Conversion 3

9:40 AM Catalytic Synthesis of THF-Derived Amines from Furfural. **Karine de Oliveira Vigier**[1], Shi Jiang[1,2], Changru Ma[2], Eric Muller[3], Francois Jerome[1] and Marc Pera-Titus[2], *(1)University of Poitiers, France, (2)Solvay, China, (3)3Solvay, Advanced Organic Chemistry & Molecule Design Laboratory,, France*.

10:00 AM Synthesis Renewable JP-10 Fuel with Furfuryl Alcohol. Guangyi Li[1], Balin Hou[1], Aiqin Wang[2], Yu Cong[1], **Ning Li**[1] and Tao Zhang[2], *(1)Dalian Institute of Chemical Physics, China, (2)Dalian Institute of Chemical Physics, CAS, China*.

10:20 AM Nickel Phosphide Nanocrystal Catalyst for Selective Transformation of HMF Derivatives to Diketones. **Shu Fujita**[1], Kiyotaka Nakajima[2], Jun Yamasaki[1], Tomoo Mizugaki[1] and Takato Mitsudome[1], *(1)Osaka University, Japan, (2)Japan Science & Technology Agency, Japan*.

10:40 AM Solvent Basicity Dictates the Selectivity for Furfural or 5-HMF Formation from Hexose Sugars. **Abhijit Shrotri**, Miyuki Asakawa, Hirokazu Kobayashi and Atsushi Fukuoka, *Hokkaido University, Japan*.

11:00 AM Selective Oxidation of 5-Hydroxymethylfurfural over Au/Nb_2O_5 Under the Light Irradiation – Effect of Gold -. **Chihiro Mochizuki**, Tetsuya Shishido, Tamao Ishida, Masatake Haruta and Toru Murayama, *Tokyo Metropolitan University, Japan*.

11:20 AM Mechanistic Insights into the Levulinic Acid and α-Angelica Lactone Hydrogenation to γ-Valerolactone over Ru/C. **Qingqing Yuan** and Peter Deuss, *University of Groningen, Netherlands*.

11:40 AM Evaluating Site Requirements for Selective C-O Bond Activation and Furan Ring Rearrangement on Reducible Oxide Supports. Laura A. Gomez, Lawrence Barrett, Taiwo Omotoso, Nicholas Briggs, Leidy Herrera, Don Jones, Bin Wang, Han Chau and **Steven Crossley**, *University of Oklahoma, USA*.

12:00 PM One-Step Catalytic Synthesis of 5, 5-Diethoxypentan-2-One from Furfural and Ethanol over Pd/$NbOPO_4$ Assisted By Formic Acid. **Qianying Fang**[1], Zhicheng Jiang[1], Guiying Li[2] and Changwei Hu[2], *(1)Sichuan University, China, (2)College of Chemistry, Sichuan University, China*.

12:20 PM Magnetic Heating for Hydrodeoxygenation of Biomass Derived Molecules. **Irene Mustieles Marin**[1], Déborah De Masi[2], Juan Manuel Asensio[2], Pier-Francesco Fazzini[1], Lise-Marie Lacroix[2] and Bruno Chaudret[2], *(1)Université de Toulouse, France, (2)INSA-CNRS-UPS Institut National des Sciences Appliquées, France*.

TUESDAY AFTERNOON

Catalysis for Biomass Conversion 4

2:00 PM Comparison of Thermal- and Electro-Catalytic Conversion of Biomass-Derived Oxygenates. **Reda Bababrik**, Daniel Resasco and Bin Wang, *University of Oklahoma, USA*.

2:20 PM Effect of MnO_2 Crystal Structure on Aerobic Oxidation of 5-Hydroxymethylfurfural into 2,5-Furandicarboxylic Acid. **Eri Hayashi**[1], Yui Yamaguchi[1], Keigo Kamata[1,2], Naoki Tsunoda[1], Yu Kumagai[1,2], Fumiyasu Oba[1] and Michikazu Hara[1,2], *(1)Tokyo Institute of Technology, Japan, (2)Japan Science and Technology Agency, Japan*.

2:40 PM Hydrogenation of Furfural with Pd or Ni Supported on Nb_2O_5. **Mayra Martinelli Costa** and Raphael Soeiro Suppino, *University of Campinas, Brazil*.

3:00 PM Tuning Catalytic Properties in Guaiacol Conversion Using Rhenium Carbide Supported Catalysts. **Elodie Blanco**[1,2], Ana Belén Dongil[3], Jose L.G. Fierro[3] and Nestor Escalona[4], *(1)Millenium Nuclei on Catalytic Processes towards Sustainable Chemistry, Chile, (2)Pontifica Universidad Católica de Chile, Chile, (3)Instituto de Catálisis y Petroleoquímica, CSIC, Spain, (4)Pontificia Universidad Católica de Chile, Chile*.

3:20 PM Controlling Reaction Routes to Maximize the Rates of C-O Bond Cleavage of Aryl Ethers on Metal Catalysts. Johannes Lercher and **Julian Schmid**, *Pacific Northwest National Laboratory, USA*.

3:40 PM Properties of Interfacial Hydrogen Species and Their Catalytic Roles in Activating C–O Bond in Phenolics on Ru Clusters. **Haoyu Nie**[1], Junnan Shangguan[1], Alyssa Hensley[1,2], Matthew Gradiski[1], Zhishan Li[1], Jacob Bray[2], Robert H. Morris[1], Jean-Sabin McEwen[2] and Ya-Huei (Cathy) Chin[1], *(1)University of Toronto, Canada, (2)Washington State University, USA*.

4:00 PM Efficient Amorphous MoS_2/C Nanocatalysts Anchored with Promoters (Ni, Co) for Lignin Derived– Phenolic Model Compounds Conversion. **Swathi Mukundan**[1] and Jorge Beltramini[2], *(1)The University of Queensland, Australia, (2)Queensland University of Technology, Australia*.

4:20 PM Understanding and Tuning Fundamental Catalytic Properties for Hdo Using Ethanol, Cyclohexanol and Phenol As Model Molecules. **Omar Valdés** and Jose Antonio De los Reyes, *Universidad Autónoma Metropolitana-Iztapalapa, Mexico*.

4:40 PM Scalable Pt/TiO_2 Catalysts Synthesized By Flame Spray Pyrolysis for Selective Biomass Upgrading. **Anurag Kumar**[1], Rongyue Wang[2], Calvin Mukarakate[1], Krzysztof Pupek[2], Joseph Libera[2] and Frederick G. Baddour[1], *(1)National Renewable Energy Laboratory, USA, (2)Argonne National Laboratory, USA*.

17th ICC Technical Program - Tuesday

Seaport DE

TUESDAY MORNING

C1 Chemistry 4

9:40 AM Direct Non-Oxidative Coupling of Methane to Ethylene over Gallium Nitride Catalyst: *A Mechanistic Approach*. Kanchan Dutta, Mohsen Shahryari, Chao-Jun Li and **Jan Kopyscinski**, *McGill University, Canada*.

10:00 AM Liquid Metal Catalysis of Indium for Dehydrogenative Coupling of Methane. Yuta Nishikawa[1], Ayumi Nakaya[1], **Shoji Iguchi**[1], Upendar Kashaboina[2], Kiyotaka Asakura[2], Jun-ya Hasegawa[2], Hitoshi Ogihara[3] and Ichiro Yamanaka[1], *(1)Tokyo Institute of Technology, Japan, (2)Hokkaido University, Japan, (3)Saitama University, Japan*.

10:20 AM Insights into the Kinetics and Mechanisms That Govern Sulfur Oxidative Coupling of Methane (SOCM). **Sagar Udyavara**[1], Shanfu Liu[2], Tracy Lohr[2], Matthias Peter[2], Tobin J. Marks[2] and Matthew Neurock[1], *(1)University of Minnesota, USA, (2)Northwestern University, USA*.

10:40 AM Surface Coupling of Methyl Radicals for Efficient Low-Temperature Oxidative Coupling of Methane. Zhinian Li, **Qiuyue Zhou**, Shenliang Wang, Shihui Zou and Jie Fan, *Zhejiang University, China*.

11:00 AM Distinguishing Surface Oxygen Species with Transient Kinetics to Understand Steady-State Performance of Oxidative Coupling of Methane. **Yixiao Wang**, Zongtang Fang, Sagar Sourav, Ross Kunz and Rebecca Fushimi, *Idaho National Laboratory, USA*.

11:20 AM Determination of Catalytic Active Site for Oxidative Coupling of Methane (OCM) over Supported Mn_2O_3-Na_2WO_4/SiO_2 Catalysts. **Sagar Sourav**[1,2], Daniyal Kiani[2], Jonas Baltrusaitis[2], Rebecca Fushimi[1] and Israel E. Wachs[2], *(1)Idaho National Laboratory, USA, (2)Lehigh University, USA*.

11:40 AM *In Situ* XRD/XPS/MS Study of Oxidative Coupling of Methane (OCM) over La_2O_3 for Activation Mechanism. **Yong Yang**, Cairu Guan, Xiaohong Zhou, Zebang Liu, Yaoqi Pang, Evgeny Vovk and Jerry Pui Ho Li, *ShanghaiTech University, China*.

12:00 PM ***KEYNOTE*** **Heterogeneous Catalysis for Sustainable Chemical Conversion: On Metal Nanoparticles, Clusters, and Single Atoms at Interfaces. Emiel J. M. Hensen**, *Eindhoven University of Technology, Netherlands*.

TUESDAY AFTERNOON

Reaction Engineering

2:00 PM ***KEYNOTE*****. Lynn Gladden**, *Cambridge University, United Kingdom*.

2:40 PM Reflections on the Direction of Industrial Catalysis Research. **Gregory S. Patience** and Daria Boffito, *Polytechnique Montreal, Canada*.

3:00 PM Novel Transient Reactors for Gas Phase Reaction Kinetics Testing Under Industrially-Relevant Conditions. **Anton Nagy**[1], Thomas Turek[2], Gregor Wehinger[2], Tim McKenna[3] and Yashmin Blazzio[3], *(1)ILS-Integrated Lab Solutions GmbH, Germany, (2)Clausthal University of Technology, Germany, (3)C2P2 CPE-Lyon, France*.

3:20 PM Controlling CO_2 Hydrogenation Selectivity. **Xiaoyu Li**[1,2], Jian Lin[1], Lin Li[1], Aiqin Wang[1], Botao Qiao[1] and Xiaodong Wang[1], *(1)Dalian Institute of Chemical Physics, Chinese Academy of Sciences, China, (2)University of Chinese Academy of Sciences, China*.

3:40 PM Improved Electrochemical CO_2 Reduction to C_{2+} Products Using Advanced Manufactured Vapor-Fed Reactors. **Daniel Corral**[1,2], Jeremy Feaster[2], Andrew Wong[2], Sarah Baker[2], Eric Duoss[2], Christopher Hahn[3] and Thomas F. Jaramillo[1,3], *(1)Stanford University, USA, (2)Lawrence Livermore National Laboratory, USA, (3)SLAC National Accelerator Laboratory, USA*.

4:00 PM Probing Local Diffusion and Reaction in a Catalyst Pellet. Bahne Sosna, Oliver Korup and **Raimund Horn**, *Hamburg University of Technology, Germany*.

4:20 PM Machine Learning for the Implementation of Kmc Models into Macroscopic Reactor Models. **Mauro Bracconi** and Matteo Maestri, *Politecnico di Milano, Italy*.

4:40 PM Reaction Engineering Studies on Pd-Catalyzed Glycerol Oxidation in Trickle Bed Reactor. **Jainesh H. Jhaveri**, Sanjay M. Mahajani and Akkihebbal K. Suresh, *Indian Institute of Technology Bombay, India*.

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TUESDAY MORNING

Catalytic Cracking

9:40 AM ***KEYNOTE*** **At the Frontier of Dynamic Surface Reactivity Via Catalytic Resonance Theory. Paul J. Dauenhauer**, *The University of Minnesota - Twin Cities, USA*.

10:20 AM Synchrotron X-Ray Absorption Spectroscopy (XAS) Characterisation of Iron and Nickel on FCC Catalysts. **Qianqian Liu**, Yuxia Zhu, Wei Lin and Fei Ren, *Research Institute of Petroleum Processing, SINOPEC, China*.

10:40 AM Hydrocracking of C14 Naphthenes. Larissa Brito[1], **Gerhard Pirngruber**[1], Emmanuelle Guillon[1] and Johan Martens[2], *(1)IFP Energies nouvelles (IFPEN), France, (2)KU Leuven, Belgium*.

11:00 AM Design of a Novel Hierarchical BEA/ZSM-5 Core-Shell Zeolite for Paraffin Wax (PW) Cracking. **Jim Mensah**[1,2] and Michael Stockenhuber[1], *(1)The University of Newcastle, Australia, (2)Kwame Nkrumah University of Science and Technology, Ghana*.

11:20 AM Correlative Microscopy Analysis of Fluid Catalytic Cracking Catalyst: From Multiparticle Screening to Single Particle Characterization. **Marianna Gambino**[1], Anne-Eva Nieuwelink[1], Martin Veselý[1], Matthias Filez[1], Roozbeh Valadian[1], Dario Ferreira Sanchez[2], Daniel Grolimund[2], Jan Garrevoet[3], Kathryn Spiers[3], Nikolai Nesterenko[4], Delphine Minoux[4], Florian Meirer[1] and Bert Weckhuysen[1], *(1)Utrecht University, Netherlands, (2)Paul Scherrer Institute, Switzerland, (3)Deutsches Elektronen-Synchrotron DESY, Germany, (4)Total Research and Technology Feluy, Belgium*.

11:40 AM Zeolite-Assisted Core-Shell Redox Catalyst for Redox Oxidative Cracking of Cyclohexane with High Olefin Yield. **Fang Hao**[1,2], Yunfei Gao[1], Ryan Dudek[1], Luke Neal[1], Pingle Liu[2] and Fanxing Li[1], *(1)North Carolina State University, USA, (2)Xiangtan University, China*.

12:00 PM Active Phase of Unsupported $MoWS_2$ Catalysts for Slurry Phase Hydrocracking of Vacuum Residue. **Yong-Kul Lee**, *Dankook University, Korea, Republic of (South)*.

12:20 PM Intrinsic Monomolecular Cracking Rates of Light Alkanes over Zeolites Revealed By *Operando* IR Spectroscopy.. Shashikant Kadam, Alexandre Vimont, Richard Wormsbecher and **Arnaud Travert**, *Normandie Univ, ENSICAEN, CNRS, LCS, France*.

TUESDAY AFTERNOON

Environmental Catalysis 2

2:00 PM Effect of Treatment Atmosphere on Vanadium Species of V/TiO_2 Catalyst for the Selective Catalytic Reduction of NO_x with NH_3. **Zhihua Lian**, Wenpo Shan, Na Zhu and Hong He, *Institute of Urban Environment, Chinese Academy of Sciences, China*.

2:20 PM Strategies for Improving Durability of Cu/Chabazite Selective Catalytic Reduction (SCR) Catalysts. **Feng Gao**[1], Yanran Cui[1], Aiyong Wang[1], Yilin Wang[1], Donghai Mei[1], Eric D. Walter[2], Nancy M. Washton[2], Yong Wang[1], Janos Szanyi[1] and Charles H.F. Peden[1], *(1)Pacific Northwest National Laboratory, USA, (2)Environmental Molecular Sciences Laboratory, USA*.

2:40 PM The Effects of Hydrothermal Aging and so_2 Exposure on Three-Way Catalyst Activity in Passive Selective Catalytic Reduction Systems. **Calvin Thomas**[1], Josh A. Pihl[1], Vitaly Y. Prikhodko[1], Jochen Lauterbach[2] and Todd J. Toops[1], *(1)Oak Ridge National Laboratory, USA, (2)University of South Carolina, USA*.

3:00 PM Activation of Natural Chabazite for NO Adsorption By Cold Start Application of Vehicles Under Several Oxygen Conditions and Temperatures. **Julio C. López Curiel**, María Eugenia Hernández-Terán and Gustavo A. Fuentes, *Universidad Autónoma Metropolitana-Iztapalapa, Mexico*.

3:20 PM The Kinetic Role of the $DeNO_x$ Reactants on Hg^0 Oxychlorination over V-Mo/Ti Catalyst in Power Plant Applications. Aldo Lanza[1], **Silvia Alcove Clave**[2], Jillian Collier[2], Luca Lietti[1], Roberto Matarrese[1] and Alessandra Beretta[1], *(1)Politecnico di Milano, Italy, (2)Johnson Matthey Technology Centre, United Kingdom*.

3:40 PM Nature of Active Sites in Cu/Aei during Selective Catalytic Reduction of NO_x with NH_3 Using O*perando* X-Ray Absorption Spectroscopy. **Rachit Khare**[1], Mirjam Wenig[1], Ricardo Bermejo de Val[1], Andreas Jentys[1] and Johannes Lercher[1,2], *(1)Technical University of Munich, Germany, (2)Pacific Northwest National Laboratory, USA*.

4:00 PM Improved Activity and so_2 Tolerance of Sm Modified Mn-Ce-Ti Catalyst for NH_3-SCR of NO. Meixin Wang, Bing Wang, Chang Liping and **Jiancheng Wang**, *Taiyuan University of Technology, China*.

4:20 PM ***KEYNOTE*** **Enhancement of Mass Transfer in Catalyst Support in Aqueous Phase. Leon Lefferts**, *University of Twente, Netherlands*.

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TUESDAY MORNING

Catalyst Synthesis and Characterization 3

9:40 AM Synthesis, Characterization and Catalytic Applications of an Iron(III) Silicate with a 2D-Nanosheet Morphology. **Yunxiang Qiao**[1,2], Nils Theyssen[1], Bernd Spliethoff[1], Jan Folke[2], Claudia Weidenthaler[1], Wolfgang Schmidt[1], Gonzalo Prieto[1,3], Cristina Ochoa-Hernández[1], Eckhard Bill[1,2], Shengfa Ye[1,2], Holger Ruland[2], Ferdi Schüth[1] and Walter Leitner[2,4], *(1)Max-Planck-Institut für Kohlenforschung, Germany, (2)Max-Planck-Institute for Chemical Energy Conversion, Germany, (3)ITQ Instituto de Tecnología Química (UPV-CSIC), Spain, (4)Institut für Technische und Makromolekulare Chemie, Lehrstuhl für Technische Chemie und Petrolchemie, RWTH Aachen, Germany*.

10:00 AM Cooperative and Competitive Occlusion of Structure Directing Agents in Zeolites Influences Their Aluminum Arrangement and Reactivity. **Rajamani Gounder**[1], John Di Iorio[1], Claire Nimlos[1], Philip Kester[1], Young Gul Hur[1], David Hibbitts[2], William F. Schneider[3], Subramanian Prasad[4] and Ahmad Moini[4], *(1)Purdue University, USA, (2)University of California at Berkeley, USA, (3)University of Notre Dame, USA, (4)BASF Corporation, USA*.

10:20 AM Tailoring Mesopore Size in Hierarchically Porous Zeotypes. **Alice Oakley**[1], Joshua Le Brocq[1], Matthew Potter[1], Mark Light[1], Marina Carravetta[1], Bart Vandegehuchte[2], Moritz Schreiber[2] and Robert Raja[1], *(1)University of Southampton, United Kingdom, (2)Total Research and Technology Feluy, Belgium*.

10:40 AM Finned Zeolites As a Novel Design to Mitigate the Diffusion Limitations of Microporous Catalysts. **Jeffrey D. Rimer**[1], Michael Tsapatsis[2], Jeremy C. Palmer[1], Bert Weckhuysen[3], Paul J. Dauenhauer[4] and Xiaodong Zou[5], *(1)University of Houston, USA, (2)Johns Hopkins University, USA, (3)Utrecht University, Netherlands, (4)University of Minnesota, USA, (5)Stockholm University, Sweden*.

11:00 AM Effects of Binders and Metal Location on Physico-Chemical and Catalytic Properties of Shaped Zeolite Beta Catalysts. **Dmitry Murzin**, *Åbo Akademi University, Process Chemistry Centre, Turku/Åbo, Finland*.

11:20 AM Small Pt Clusters within the Channels of a Ge-ZSM-5 Shale Gas Condensate Aromatization Catalyst. **Travis Conant**, Alla Khanmamedova, Kaiwalya Sabnis, Scott Stevenson and Jun Wang, *SABIC, USA*.

11:40 AM Characterizing Open-Metal Site Density and Speciation in Metal-Organic Framework Catalysts for Light Alkane Conversion. **Praveen Bollini**, *University of Houston, USA*.

12:00 PM Pt/KL-Zeolite Aromatization Catalyst with Improved Activity and Stability. **Gabriela Alvez-Manoli**, Steve Kelly, Sikander Hakim, Cori Demmelmaier-Chang and Joe Bergmeister, *Chevron Phillips Chemical Company LP, USA*.

12:20 PM Topotactic Transformations and Postsynthetic Modifications of Germanosilicate CIT-13 Having Extra-Large Pore Openings. **Jong Hun Kang**[1], Dan Xie[2], Stacey Zones[2] and Mark E. Davis[1], *(1)California Institute of Technology, USA, (2)Chevron Energy Technology Company, USA*.

TUESDAY AFTERNOON

Catalyst Synthesis and Characterization 4

2:00 PM Controlling the Aggregation Behavior of Atomically Dispersed Supported Iridium Complexes By Adjusting Their Electronic Structure. **Samira Fatma Kurtoglu**[1], Adam Hoffman[2], Melike Babucci[3], Bruce C. Gates[3], Simon Bare[2] and Alper Uzun[1], *(1)Koc University, Turkey, (2)SLAC National Accelerator Laboratory, USA, (3)University of California, Davis, USA*.

2:20 PM Crystal Structure Transformation from Sb-Containing Trigonal Mo_3VO_x to Orthorhombic Mo_3VO_x By Heat Treatment and Its Effect on Catalytic Oxidation Property. **Shoma Inukai**, Satoshi Ishikawa and Wataru Ueda, *Kanagawa University, Japan*.

2:40 PM Effect of Residual Chlorine on the Catalytic Performance of Co_3O_4 for CO Oxidation. Muhong Li, Feifei Bi, Yida Xu, Weiping Ding and **Xuefeng Guo**, *Nanjing University, China*.

3:00 PM Design of an Active and Stable Catalyst for Dry Reforming of Methane Via Molecular Layer Deposition. **Piyush Ingale**[1], Chengyue Guan[1], Ralph Kraehnert[1], Raoul Naumann d'Alnoncourt[1], Arne Thomas[2] and Frank Rosowski[1,3], *(1)Technical University Berlin, Germany, (2)Technische Universität Berlin, Germany, (3)BASF SE, Germany*.

3:20 PM $Pt/CoO_x/TiO_2$ Catalysts Prepared By Selective-Strong Electrostatic Adsorption for the Preferential CO Oxidation (PROX) in H_2. **Carlos Navas**[1,2], Noelia Benito[3], Eduardo E. Wolf[4] and Francisco Gracia[2], *(1)Amazon Regional University Ikiam, Ecuador, (2)University of Chile, Chile, (3)University of Concepcion, Chile, (4)University of Notre Dame, USA*.

3:40 PM Cu Particle Size Effects in Selective Hydrogenation. **Petra E. de Jongh**, *Utrecht University, Netherlands*.

4:00 PM H_2- and NH_3-Assisted Thermal Activation of Layered Mg-Al Double Hydroxides with Interlayer Sulfonates. **Isao Ogino**, Rei Tanaka, Yuki Hirayama and Shin Mukai, *Hokkaido University, Japan*.

4:20 PM Dry Reforming of Methane over Ni - Based Catalysts from Mg-Al-Hydrotalcite-like Precursors. **Sonia Damyanova**, *Bulgarian Academy of Sciences, Bulgaria*.

4:40 PM Debottlenecking Catalytic Activity By Using Catalyst Supports with Oriented Radial Porosity. Alejandra Bueno[1,2], Michaela Klotz[1], Yves Schuurman[2] and **David Farrusseng**[2], *(1)Saint-Gobain CREE, Saint-Gobain Research Provence, France, (2)CNRS, Université de Lyon1, France*.

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TUESDAY MORNING

Supported Metals 3

9:40 AM Effect of Interfacial Structure on Catalytic Properties of Bimetallic Nanoparticles. **Akhil Tayal**[1], Chulho Song[2], Okkyun Seo[2], Jaemyung Kim[2], L.S.R. Kumara[2], Satoshi Hiroi[2], Yanna Chen[2], Kohei Kusada[3], Hirokazu Kobayashi[3], Hiroshi Kitagawa[3] and Osami Sakata[2], *(1)Deutsches Elektronen-Synchrotron, Germany, (2)National Institute for Materials Science, Japan, (3)Kyoto University, Japan*.

10:00 AM First Principles Studies of Reactivity Descriptors and Catalytic Trends at Metal-Oxide Interfaces. Paulami Majumdar[1], Pushkar Ghanekar[1], Tej Choksi[2], Garrett Mitchell[1], W. Nicholas Delgass[1], Fabio H. Ribeiro[1] and **Jeffrey Greeley**[1], *(1)Purdue University, USA, (2)Stanford University, USA*.

10:20 AM Quantifying Support Effects in Catalysis: Theory Meets Experiment. **Konstantin Neyman**, *ICREA & Universitat de Barcelona, Spain*.

10:40 AM Platinum Catalyzed C–H Activation and the Effect of Metal Support Interactions. **Aaron Sattler**[1], Michele Paccagnini[1], Michael Lanci[2], Sal Miseo[2] and Chris Kliewer[3], *(1)ExxonMobil Research & Engineering Company, USA, (2)ExxonMobil Research and Engineering, USA, (3)Exxonmobil Research and Engineering Company, USA*.

11:00 AM Adsorption and Activation of O_2 over Atomic Cu(I/II) Site on CeO_2. **Liqun Kang**, Bolun Wang and Feng Ryan Wang, *University College London, United Kingdom*.

11:20 AM Structural Dynamics of Pt-Pd Clusters and Their Kinetic Consequences during Methane Oxidation Catalysis. Haoyu Nie, Petar Lachkov, Jane Howe and **Ya-Huei (Cathy) Chin**, *University of Toronto, Canada*.

11:40 AM Water-Assisted Pathway during Pd-Catalyzed H2O2 Decomposition. **Tianze Xie**, Anish Dasgupta, Logan Ruthardt and Robert Rioux, *Pennsylvania State University, USA*.

12:00 PM CO_2 Recycling Via Hydrogenation of Carbonate Derivatives to Methanol: Regulating Copper-Oxide Promotion Effects in Supported Catalysts. Jonglack Kim[1], Norbert Pfaender[2] and **Gonzalo Prieto**[1,3], *(1)Max-Planck-Institut für Kohlenforschung, Germany, (2)Max-Planck-Institut für Chemische Energiekonversion, Germany, (3)ITQ Instituto de Tecnología Química (UPV-CSIC), Spain*.

12:20 PM Direct Conversion of Methane to Methanol on Ni-CeO_2 Surfaces: The Roles of Metal-Support Interactions and a Water-Rich Environment. **M. Verónica Ganduglia-Pirovano**[1], Pablo Lustemberg[1,2], Sanjaya Senanayake[3] and Jose A. Rodriguez[3], *(1)Instituto de Catálisis y Petroleoquímica (ICP-CSIC), Spain, (2)Instituto de Física Rosario (IFIR-CONICET), Argentina, (3)Brookhaven National Laboratory, USA*.

TUESDAY AFTERNOON

Supported Metals 4

2:00 PM Accurate Predictions of Coverages, Site Requirements, and Rates for High-Pressure CO and Alkane Hydrogenolysis Using Curved Nanoparticle Models. **David Hibbitts**[1], Abdulrahman Almithn[1], Jianwei Liu[2] and Enrique Iglesia[2], *(1)University of Florida, USA, (2)University of California, USA*.

2:20 PM Strong Interactions between the Ad-Metal and Molybdenum Carbide Substrates for H_2 Production and CO_2 Utilization. **Xiao Zhang** and Chuan Shi, *Dalian University of Technology, China*.

2:40 PM Influence of Water on C-O Hydrogenolysis Catalyzed By Ru/TiO_2. Daniela Stuck[1], Akbar Mahdavi[1,2], Rachel Austin[2], Brian Frederick[1], Lars C. Grabow[3] and **Thomas J. Schwartz**[1], *(1)University of Maine, USA, (2)Barnard College, USA, (3)University of Houston, USA*.

3:00 PM Tuning Catalyst Nuclearity and Local Coordination at Interfaces to Control CO_2 Hydrogenation. **Yifeng Zhu**, Jian Zheng, John Fulton, Johannes Lercher and Oliver Y. Gutierrez, *Pacific Northwest National Laboratory, USA*.

3:20 PM First-Principles Kinetic Monte Carlo Study of Water-Mediated C-O Bond Cleavage in Phenolic Compounds over Titania Supported Ruthenium Catalyst. **Xiao Li** and Lars C. Grabow, *University of Houston, USA*.

3:40 PM Boosting CO_2 Hydrogenation Via Size-Dependent Metal-Support Interactions of Co/CeO_2-Based Catalysts. **Alexander Parastaev**, Valerii Muravev, Elisabet Huertas Osta, Nikolay Kosinov and Emiel J. M. Hensen, *Eindhoven University of Technology, Netherlands*.

4:00 PM How Does Water Influence Ru-Catalyzed Hydrogenation Reactions?. Gregor Meyer, Timo Schäfer and **Marcus Rose**, *TU Darmstadt, Germany*.

4:20 PM Trends in Metal-Support Interaction from First-Principles Calculations. Elisabeth Dietze and **Philipp Plessow**, *Karlsruhe Institute of Technology, Germany*.

4:40 PM Differences in Active Site Requirements for O_2 Reduction to H_2O_2 and H_2o on PdAu Bimetallic Nanoparticles. **Tomas Ricciardulli**[1], Jason Adams[1], Coogan Thompson[2], Ayman M. Karim[2] and David Flaherty[1], *(1)University of Illinois at Urbana-Champaign, USA, (2)Virginia Polytechnic Institute and State University, USA*.

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TUESDAY MORNING

Catalysis with Oxides 3

12:00 AM Efficient Synthesis of Alkyl *N*-Arylcarbamates from CO_2, Anilines, and Alcohols Using CeO_2 and 2-Cyanopyridine. **Yu Gu**, Keiichi Tomishige, Masazumi Tamura and Yoshinao Nakagawa, *Tohoku University, Japan*.

9:40 AM Regulating the Extra-Framework Oxygen Species in C12A7 As a Tool to Adjust the Selectivity of an Oxidation Process. **Isaac Meza-Trujillo** and Eric Gaigneaux, *Université catholique de Louvain, Belgium*.

10:00 AM Design of Active and Stable Perovskite Catalysts Including Noble Metal Nanoparticles for Advanced Catalytic Applications. **Yukwon Jeon**, Maadhav Kothari, David N. Miller and John T.S. Irvine, *University of St Andrews, United Kingdom*.

10:20 AM Effect of the Surface Reconstruction of Perovskite Catalysts on Redox and Acid-Base Catalysis. **Felipe Polo-Garzon**[1], Victor Fung[1], Zhenghong Bao[1], Lei Bai[1,2], Hanjing Tian[2], Miaofang Chi[1], De-en Jiang[3] and Zili Wu[1], *(1)Oak Ridge National Laboratory, USA, (2)West Virginia University, USA, (3)University of California, Riverside, USA*.

10:40 AM Selective Oxidation of Acrolein over Crystalline Mo-V-W-O Catalyst. **Satoshi Ishikawa**, Yudai Yamada, Naoki Kashio and Wataru Ueda, *Kanagawa University, Japan*.

11:00 AM Kinetics of Ethylene Steam Reforming over Manganese-Chromium Spinel Catalysts. **Lu Yang**[1], Maxim Bukhovko[2], Gordon Brezicki[1], Andre Malek[3], Liwei Li[3], Christopher Jones[2], Pradeep Agrawal[4] and Robert J. Davis[1], *(1)University of Virginia, USA, (2)Georgia Institute of Technology, USA, (3)The Dow Chemical Company, USA, (4)Michigan Technological University, USA*.

11:20 AM Perovskite Oxides: Silica Composites for Low Temperature Thermochemical CO_2 Conversion. Bryan Hare, Jeremy Brower, Debtanu Maiti, Hanzhong Shi, Venkat R. Bhethanabotla and **John N. Kuhn**, *University of South Florida, USA*.

11:40 AM Valorization of Levulinic Acid over Catalysts of Cobalt in Structure Type Perovskite. **Juan Seguel** and Gina Pecchi, *University of Concepcion, Chile*.

12:00 PM Reaction-Driven Surface Reconstruction of the Zn_2AlO_x Catalyst for CO_2 Hydrogenation to Methanol. **Xinbao Zhang**[1], Fei Yuan[1], Jianyang Wang[1], Xiao Jiang[2], Anfeng Zhang[1], Fanshu Ding[1], Guanghui Zhang[1], Chunshan Song[1] and Xinwen Guo[1], *(1)Dalian University of Technology, China, (2)Georgia Institute of Technology, USA*.

12:20 PM Liquid-Phase Oxidation of Alcohols and Olefins over Transition Metal-Based Spinel and Perovskite Oxides. **Baoxiang Peng** and Martin Muhler, *Ruhr-University Bochum, Germany*.

TUESDAY AFTERNOON

Electrocatalysis and Photocatalysis Fundamentals 1

2:00 PM Precious Metal Single Atom Catalysts for Fuel Cell Applications. **Hyunjoo Lee**, Hee-Eun Kim and Sangyong Shin, *Korea Advanced Institute of Science and Technology, Korea, Republic of (South)*.

2:20 PM Formation of C-N Bonds during Carbon Monoxide Electrolysis. **Feng Jiao**, *University of Delaware, USA*.

2:40 PM Ketyl Radical Stability As a Descriptor in Aldehyde Coupling Activity. **Jacob Anibal**, Arnav Malkani and Bingjun Xu, *University of Delaware, USA*.

3:00 PM Enhancing the Activity of C-Supported Pd for Electrocatalytic Hydrogenation through Support Functionalization and Particle Size. **Katherine Koh**, Udishnu Sanyal, Malsoon Lee, Vassiliki-Alexandra Glezakou, Roger Rousseau, Oliver Y. Gutierrez, Abhi Karkamkar and Johannes Lercher, *Pacific Northwest National Laboratory, USA*.

3:20 PM Photocatalytic Organic Synthesis: From Fundamental to Applications. **Ren Su**[1], Yitao Dai[2], Yaru Li[3], Hans (J.W.) Niemantsverdriet[4], Yongwang Li[3] and Flemming Besenbacher[2], *(1)Soochow University, China, (2)Aarhus University, Denmark, (3)Synfuels China Technology Co., Ltd., China, (4)Eindhoven University of Technology, Netherlands*.

3:40 PM Intermolecular Interactions Among Co-Adsorbates Promote the Rates of Electrocatalytic Hydrogenation. **Udishnu Sanyal**, Katherine Koh, Simuck Yuk, Malsoon Lee, Abhi Karkamkar, Donald M. Camaioni, Roger Rousseau, Oliver Y. Gutierrez and Johannes Lercher, *Pacific Northwest National Laboratory, USA*.

4:00 PM Electrocatalytic Oxygen Atom Transfer Reactions from Water to Hydrocarbons. **Karthish Manthiram**, *Massachusetts Institute of Technology, USA*.

4:20 PM Electrocatalytic Oxidative Dehydrogenation of Propane: Oxide Ion and Proton Conductive Composite Anode to Control the Olefin Selectivity. **Umit S. Ozkan**, Dhruba Jyoti Deka, Seval Gunduz, Jaesung Kim and Anne Co, *The Ohio State University, USA*.

4:40 PM The Importance of Activation Barriers in Designing Optimal Active Sites for the Oxygen Evolution Reaction. **Craig Plaisance**[1], Simeon Beinlich[2] and Karsten Reuter[2], *(1)Louisiana State University, USA, (2)Technical University of Munich, Germany*.

17th ICC Technical Program - Tuesday

Coronado AB

TUESDAY MORNING

Catalysis with Ordered Porous Materials 3

9:40 AM Methanol to Olefins: From Catalyst Synthesis, MTO Mechanism, to Catalyst Deactivation. **Guang Cao**[1], Mobae Afeworki[1] and Chris Kliewer[2], *(1)ExxonMobil Research and Engineering Co., USA, (2)Exxonmobil Research and Engineering Company, USA*.

10:00 AM Unravelling Channel Geometry Effects on the Shape-Selectivity in Methanol-to-Hydrocarbons Conversion over Zeolite ZSM-5. **Donglong Fu**, Alessandra Lucini Paioni, Onno van der Heijden, Marc Baldus and Bert Weckhuysen, *Utrecht University, Netherlands*.

10:20 AM MTO Catalysis over Uzm-55: Understanding the Impact of Aluminum Content and One-Dimensional Pore Containing 10MR and 12MR on Reaction Pathways. **Christopher Nicholas**, Melissa Galey, John Mowat, Wharton Sinkler and Sesh Prabhakar, *Honeywell UOP, USA*.

10:40 AM Strategies to Mitigate Deactivation in Methanol-to-Hydrocarbons Catalysis over Zeolites. **Zhichen Shi**, Sukaran Arora, Andrew Hwang and Aditya Bhan, *University of Minnesota, Twin Cities, USA*.

11:00 AM Methanol-to-Olefins Conversion over Small-Pore DDR Zeolites: Tuning the Propylene Selectivity Via the Olefins-Based Catalytic Cycle. **Zhaohui Liu**[1] and Yu Han[2], *(1)King Abdullah University of Science and Technology (KAUST), Saudi Arabia, (2)King Abdullah University of Science & Technology, Saudi Arabia*.

11:20 AM A Facile Protocol to Synthesize an Alveolus-like Zeolite By Desilication-Alumination and Its Catalytic Performance for the Methanol Conversion. **Junjie Li**[1] and Min Liu[2,3], *(1)State Key Laboratory of Catalysis, Dalian Institute of Chemical Physics, Chinese Academy of Sciences, Dalian 116023, (P. R. China), China, (2)State Key Lab of Fine Chemicals, Dalian University of Technology, China, (3)Dalian University of Technology, China*.

11:40 AM Nanosheet Ferrierite Application for a Gas-Phase DME Carbonylation with an Enhanced Catalytic Activity and Stability. **Hyun Seung Jung** and Jong Wook Bae, *Sungkyunkwan University, Korea, Republic of (South)*.

12:00 PM Carbonylation of Dimethyl Ether over Mordenite: Towards Elucidating the Effects of Acid Strength. **Kai Cai**, Shouying Huang, Ying Li and Xinbin Ma, *Tianjin University, China*.

12:20 PM Promotion of Zeolite-Catalyzed Methanol Dehydration to Dimethyl Ether By Organic Carbonyl Co-Feeds. **Ben Dennis-Smither**[1], Zhiqiang Yang[2] and Glenn Sunley[1], *(1)BP International Ltd, United Kingdom, (2)BP (China) Holdings Ltd, China*.

TUESDAY AFTERNOON

Catalysis with Ordered Porous Materials 4

2:00 PM Kinetic and Deactivation Mechanisms of Alkene Oxidation Reactions on Fe and Cr Based Metal-Organic Frameworks. Rachel Yang and **Michele Sarazen**, *Princeton University, USA*.

2:20 PM Hydrogen-Bonded Brønsted Acid Sites in Zeolites and Their Potential Role in the Haag-Dessau Mechanism of Hydrocarbon Reactions. **Hubert Koller**[1], Christian Schroeder[1], Christian Mück-Lichtenfeld[1] and Michael Hunger[2], *(1)University of Muenster, Germany, (2)University of Stuttgart, Germany*.

2:40 PM Rational Design of Cooperative Active Sites in a Y Zeolite for Catalytic Ethylene/2-Butene Cross-Metathesis. **Pu Zhao**, Lin Ye and Shik-Chi Edman Tsang, *University of Oxford, United Kingdom*.

3:00 PM Ethylcyclohexane Hydroisomerization over Euo Type Zeolites: Unraveling the Location of the Active Sites By Multi-Scale Kinetics. Ester Gutierrez Acebo[1], Jérôme Rey[1], Christophe Bouchy[1], Yves Schuurman[2] and **Céline Chizallet**[1], *(1)IFP Energies nouvelles, France, (2)CNRS, Université de Lyon1, France*.

3:20 PM Effect of Acidic Properties of Zeolite Catalysts on the Constraint Index Value. **Sungsik Park**[1] and Toshiyuki Yokoi[2], *(1)Tokyo Institute of Technology, Japan, (2)4259 Nagatsuta, Midori-ku, Japan*.

3:40 PM Composition–Reactivity Relations in Oxidative Conversion of Methane over Ni Contained Zeolite Catalyst. Shuhei Yasuda[1], Yusuke Kunitake[1], Kaoru Yamazaki[2], Mizuho Yabushita[2], Atsushi Muramatsu[2,3], Momoji Kubo[2] and **Toshiyuki Yokoi**[4], *(1)Tokyo Institute of Technology, Japan, (2)Tohoku University, Japan, (3)JST CREST, Japan, (4)4259 Nagatsuta, Midori-ku, Japan*.

4:00 PM Cu-Erionite Zeolite Achieves High Yield in Direct Oxidation of Methane to Methanol By Isothermal Chemical Looping. **Jie Zhu**[1,2,3], Vitaly L. Sushkevich[3], Amy J. Knorpp[2], Mark A. Newton[2], Stefanie C. M. Mizuno[3], Toru Wakihara[1], Tatsuya Okubo[1], Zhendong Liu[1] and Jeroen A. van Bokhoven[2,3], *(1)The University of Tokyo, Japan, (2)ETH Zürich, Switzerland, (3)Paul Scherrer Institute, Switzerland*.

4:20 PM Exploring Single Sites within Solid Acid Catalysts Via an *in Operando* Catalytic Technique. **Joshua Le Brocq**[1], Alice Oakley[1], Matthew Potter[1], Marina Carravetta[1], Mark Light[1], Bart Vandegehuchte[2], Moritz Schreiber[2] and Robert Raja[1], *(1)University of Southampton, United Kingdom, (2)Total Research and Technology Feluy, Belgium*.

4:40 PM Investigation of Methoxy Ad-Species in Isomorphously Substituted MFI Zeolites. **Simone Creci** and Magnus Skoglundh, *Chalmers University of Technology, Sweden*.

17th ICC Technical Program - Tuesday

Coronado CD

TUESDAY MORNING

Environmental Catalysis 1

9:40 AM Spatially Resolved Study of the Hydrothermal Aging of Lean NOx Trap. **Alexandre Goguet**[1], Tommaso Pellegrinelli[1], Geoffrey McCullough[2], Roberto Caporali[3] and Iain Murray[3], *(1)Queen's University Belfast, United Kingdom, (2)Queen's University Belfast, United Kingdom, (3)Ford Motor Company, United Kingdom*.

10:00 AM Boosting the Low-Temperature NH_3-SCR Performance of Cu-CHA Catalyst By Regulating Cu Redox Initiation. **Peirong Chen**, *South China University of Technology, China*.

10:20 AM Influence of Sodium and/or Phosphorus Loading on the Deactivation of a Cu/FER Exchanged Zeolite for SCR of NOx with NH_3.. Marie-Laure Tarot[1,2], Fabien Can[1,2], Daniel Duprez[1,2], Vincent Lauga[3], Eduard Emil Iojoiu[3] and **Xavier Courtois**[1,2], *(1)University of Poitiers, France, (2)CNRS, France, (3)Renault Trucks - Volvo Group Trucks Technology, France*.

10:40 AM Low Temperature NO_x Reduction By Bifunctional Strategy of NO_x Storage and Reduction Assessed By *Operando* TPSR-XAS Method. **Masaoki Iwasaki**, Hideki Takagi, Akihiko Kato and Yasutaka Nagai, *Toyota Central R&D Labs., Inc., Japan*.

11:00 AM Denitrification Catalysts for Clean Water and Nitrogen Recovery. **Michael S. Wong**, *Rice University, USA*.

11:20 AM (EtOH+NH_3) Bi-Functional Synergism for Low Temperature Lean-NOx Reduction over Ag/Al_2O_3 and Dual-Bed Catalysts System. **Fabien Can**, Xavier Courtois, Maxime Delporte and Mathias Barreau, *CNRS, France*.

11:40 AM Selective Catalytic Reduction of NO_x with NH_3 over WO_3-Based Catalysts. **Zhiming Liu**, Hang Su and Yuxian Liu, *Beijing University of Chemical Technology, China*.

12:00 PM Structure and Reactivity of Mobilized Cu-Oxygen Pairs in the Low Temperature NH_3-Selective Catalytic Reduction. Chiara Negri[1], Tommaso Selleri[2], Andrea Martini[1], Michele Cutini[1], Kirill Lomachenko[3], Ton V.W. Janssens[4], Elisa Borfecchia[1], Silvia Bordiga[1] and **Gloria Berlier**[1], *(1)University of Turin, Italy, (2)Politecnico di Milano, Italy, (3)European Synchrotron Radiation Facility, France, (4)Umicore Denmark ApS, Denmark*.

12:20 PM Design of Emission Control Catalysts with Atomic Precision By Using Single-Atom Platinum As Building Blocks. **Ming Yang**[1], Wei Li[2] and Se H. Oh[1], *(1)General Motors Global Research & Development, USA, (2)General Motors Global R&D, USA*.

TUESDAY AFTERNOON

C1 Chemistry 3

2:00 PM Role of Water in the Selective, Aerobic Oxidation of Methane to Oxygenates over Noble-Metal Based Catalysts. **Sinqobile Mahlaba**, Junfeng Guo, Gerard Leteba and Eric van Steen, *University of Cape Town, South Africa*.

2:20 PM CO_2 Hydrogenation to Ethanol over Pd/Bi_2O_3 Catalysts: The Synergistic Effect of Pd Particle Size and Surface Oxygen Vacancy. **Yang Xiao**[1], Yuan Wang[1], Feng Jiang[2], Guomin Xiao[3] and Arvind Varma[1], *(1)Purdue University, USA, (2)Jiangnan University, China, (3)Southeast University, China*.

2:40 PM Copper-Molybdenum Carbides Supported on Carbon for CO_2 Hydrogenation to CH_3oh. **Ana Belén Dongil**[1], Antonio Guerrero-Ruiz[2] and Inmaculada Rodríguez-Ramos[1], *(1)Instituto de Catálisis y Petroleoquímica, CSIC, Spain, (2)UNED, Spain*.

3:00 PM Synergy between Different Active Sites in Affecting CO_2 Hydrogenation Kinetics and Selectivity. Libo Yao, Xiaochen Shen, Yanbo Pan and **Zhenmeng Peng**, *The University of Akron, USA*.

3:20 PM Ru on Solid Molecular Phosphine Catalysts for CO_2 Hydrogenation. **Peter Hausoul**[1], Regina Palkovits[1], Ruiyan Sun[1], Anna Kann[1], Astrid Besmehn[2] and Heinrich Hartmann[2], *(1)RWTH Aachen University, Germany, (2)Forschungszentrum Juelich GmbH, Germany*.

3:40 PM Dual Functional Materials for Integrated CO_2 Capture and Utilization. **Hongman Sun**, *Queen's University Belfast, United Kingdom*.

4:00 PM Catalyst and Process Design for CO_2 Hydrogenation to Methane. **Alessandro Porta**, Carlo Giorgio Visconti and Luca Lietti, *Politecnico di Milano, Italy*.

4:20 PM Ultradispersed Mo/TiO_2 As an Efficient Catalyst for CO_2 Hydrogenation to Methanol. **Thomas Len**[1], Mounib Bahri[2], Ovidiu Ersen[2], Luis Cardenas[1], Pavel Afanasiev[1], Noémie Perret[1], Franck Morfin[1] and Laurent Piccolo[1], *(1)University of Lyon, France, (2)University of Strasbourg, France*.

4:40 PM Mechanistic Study of Non-Thermal Plasma Assisted CO_2 Hydrogenation over Ru Supported on Mgal Layered Double Hydroxide. **Shanshan Xu**, Sarayute Chansai, Huanhao Chen, Xiaolei Fan and Christopher Hardacre, *The University of Manchester, United Kingdom*.

17th ICC Technical Program - Wednesday

WEDNESDAY, June 17

Seaport ABC

WEDNESDAY MORNING

Functionalization and Conversion of C?-C? Paraffins

9:40 AM ***KEYNOTE*** **How Can We Overcome Selectivity Limits in Alkane Oxidation?. Annette Trunschke**, *Fritz-Haber-Institut der Max-Planck-Gesellschaft, Germany*.

10:20 AM Oxidative Coupling of Light Alkanes Using Isobutane As Oxygen Carrier: Alkane Structure Reactivity Relationship. **Kun Wang** and Jonathan Mitchell, *ExxonMobil Research and Engineering, USA*.

10:40 AM Metal-Free Boride Catalysts for Oxidative Dehydrogenation of Light Alkanes to Olefins. **An-Hui Lu**, *Dalian University of Technology, China*.

11:00 AM Supported Catalytically Active Liquid Metal Solutions (SCALMS) – Single Atom Catalysis for Technical Alkane Dehydrogenation. Narayanan Raman[1], **Moritz Wolf**[1], Nicola Taccardi[1], Marco Haumann[1] and Peter Wasserscheid[1,2], *(1)Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany, (2)Forschungszentrum Jülich, Germany*.

11:20 AM Oxidative Cracking of *N*-Butane to Light Olefins over Hexagonal Boron Nitride. **William McDermott**, Juan Venegas and Ive Hermans, *University of Wisconsin–Madison, USA*.

11:40 AM On the Design of Oxygen Carriers for Propane Dehydrogenation Via Chemical Looping. **Jinlong Gong**, *Tianjin University, China*.

12:00 PM Density Functional Theory Analysis of Trends in Propane Dehydrogenation on Palladium Alloys. **Ranga Rohit Seemakurthi**[1], Stephen Purdy[2], Fabio H. Ribeiro[1], Jeffrey T. Miller[1] and Jeffrey Greeley[1], *(1)Purdue University, USA, (2)Oak Ridge National Laboratory, USA*.

12:20 PM Revealing Reaction Mechanisms of Propane Oxidative Dehydrogenation over Hexagonal Boron Nitride Catalysts. **Xuanyu Zhang**[1,2,3], Rui You[1,3], Victor Fung[2], Zili Wu[2] and Weixin Huang[1,3], *(1)University of Science and Technology of China, China, (2)Oak Ridge National Laboratory, USA, (3)University of Science and Technology of China, Hefei 230026, P. R. China., China*.

WEDNESDAY AFTERNOON

In Situ and Operando Analysis 1

2:00 PM ***KEYNOTE*** **Finding a Needle in a Haystack – Active Sites in Olefin Oligomerization Assessed By Operando Spectroscopy. Angelika Brueckner**, *Leibniz Institute for Catalysis, Germany*.

2:40 PM Different Efficiency of Zn^{2+} Cations and ZnO Species for Activation of Propane on Zn-Modified Zeolite BEA. **Alexander Stepanov**[1,2], Sergei Arzumanov[1,2] and Anton Gabrienko[1,2], *(1)Boreskov Institute of Catalysis, Russian Federation, (2)Novosibirsk State University, Russian Federation*.

3:00 PM Application of Electron-Beam-Excited Surface Plasmons to Unveil Catalytic Active Sites on Plasmonic Au Nanoparticles. **Wei-Chang David Yang**[1,2], Canhui Wang[1,2], Lisa Fredin[1], Henri Lezec[1] and Renu Sharma[1], *(1)National Institute of Standards and Technology, USA, (2)University of Maryland - College Park, USA*.

3:20 PM In Situ Raman Analyses of the CO Oxidation Reaction over Nanostructured Ceria-Based Catalysts. **Enrico Sartoretti**, Chiara Novara, Fabrizio Giorgis, Marco Piumetti, Samir Bensaid, Nunzio Russo and Debora Fino, *Politecnico di Torino, Italy*.

3:40 PM A Kerr-Gated Raman Probe into the Catalytic Fast Pyrolysis Reaction. **Emma Campbell**[1], Andrew M. Beale[1], Ines Lezcano-Gonzalez[1], Igor Sazanovich[2], Michael Watson[3] and Michael Towrie[2], *(1)University College London, United Kingdom, (2)Central Laser Facility, United Kingdom, (3)Johnson Matthey PLC, United Kingdom*.

4:00 PM *In-Situ* ftir Study on Acid Site Distribution within Zeolites through Hydrocarbon Dosing. **Zhuoran Xu**[1], Zhaorong Zhang[2], Corneliu Buda[1], Eric Doskocil[1], Ben Dennis-Smither[3] and Glenn Sunley[3], *(1)BP, USA, (2)BP Group Reseaerch, USA, (3)BP International Ltd, United Kingdom*.

4:20 PM Surface over-Layer Formation and Dynamics in the Strong Metal-Support Interaction State on Supported Metal Catalysts. **Arik Beck**[1,2], Xing Huang[1], Luca Artiglia[2], Maxim Zabilskiy[2], Xing Wang[2], Przemyslaw Rzepka[1,2], Dennis Palagin[2], Marc Willinger[1] and Jeroen A. van Bokhoven[1,2], *(1)ETH Zurich, Switzerland, (2)Paul Scherrer Institute, Switzerland*.

4:40 PM A Development of Plasma Drifts Cell for the *in-Situ* Investigation of Heterogeneously Catalysed Reaction. Cristina Stere[1], **Sarayute Chansai**[1], Rahman Gholami[1], Kanlayawat Wangkawong[1,2], Alexandre Goguet[3], Christopher Hardacre[1] and Burapat Inceesungvorn[2], *(1)The University of Manchester, United Kingdom, (2)Chiang Mai University, Thailand, (3)Queen's University Belfast, United Kingdom*.

17th ICC Technical Program - Wednesday

Seaport DE

WEDNESDAY MORNING

Electrocatalysis and Photocatalysis Fundamentals 2

9:40 AM Comparison of Photocatalysis and Electrocatalysis for Oxidative Purification of Saline Waste Water. **Guido Mul**, *Twente University of Technology, Netherlands*.

10:00 AM Overall Water Splitting of Photocatalysts with Wide Visible Light Utilization. **Fuxiang Zhang**, *Dalian Institute of Chemical Physics, China*.

10:20 AM Dye-Sensitized Photocatalyst for Whole Water Splitting to Produce Hydrogen. Yi-Shan Huang[1], **Jeffrey Chi-Sheng Wu**[1], Yu-Chieh Pao[2] and Mei-Rurng Tseng[2], *(1)National Taiwan University, Taiwan, (2)Industrial Technology Research Institute, Taiwan*.

10:40 AM ***KEYNOTE*** **Water Splitting: Reactant Switching, Reaction Mechanism, and Catalytic Activity. Kazuhiro Takanabe**, *The University of Tokyo, Japan*.

11:20 AM Metal Selenide Photocatalysts for Z-Scheme Overall Water Splitting. **Shanshan Chen**, Takashi Hisatomi, Tsuyoshi Takata and Kazunari Domen, *Shinshu University, Japan*.

11:40 AM Defect Engineering in Perovskite-like Material for Cocatalyst-Free Photocatalytic Splitting of Pure Water. **Eike Sebastian Welter**, Michael Goepel and Roger Gläser, *Universität Leipzig, Germany*.

12:00 PM Stable Cu Nps Induced Efficient Visible-Light Photocatalytic Water Splitting. **Lequan Liu**, *Tianjin University, China, China*.

12:20 PM Highly-Active and Stable Solar Water Splitting over a Perovskite-Type $BaTaO_2n$ Photoanode. **Jeongsuk Seo**[1] and Kazunari Domen[2], *(1)Chonnam National University, Korea, Republic of (South), (2)The University of Tokyo, Japan*.

WEDNESDAY AFTERNOON

C1 Chemistry 5

2:00 PM Synergy Among Metal Oxides in Oxidative Coupling of Methane Under Supercritical Water. Muzamil Hassan and **Masaharu Komiyama**, *Universiti Teknologi PETRONAS, Malaysia*.

2:20 PM CO_2-ODH of Ethane over Iron-Nickel Nanoalloys. **Shaine Raseale**[1], Gonzalo Prieto[2], Michael Claeys[1] and Nico Fischer[1], *(1)Catalysis Institute and c*change (DST-NRF Centre of Excellence in Catalysis), University of Cape Town, South Africa, (2)Instituto de Tecnología Química, Spain*.

2:40 PM The Effect of Syngas Ratio on Commercial Cobalt Fischer-Tropsch Catalyst Studied By Operando Ssitka-Drifts-MS and Other Transient Techniques. **Angelos Efstathiou** and Michalis Vasiliades, *University of Cyprus, Cyprus*.

3:00 PM Oxidation of nickel, iron and cobalt based catalysts in syngas reactions. **Michael Claeys**, *Catalysis Institute and c*change (DST-NRF Centre of Excellence in Catalysis), University of Cape Town, South Africa*.

3:20 PM Reaction Mechanism of Syngas Catalytic Conversion on Bifunctional Catalysts Characterized By Solid-State NMR Spectroscopy. Ke Gong, Zhenchao Zhao and **Guangjin Hou**, *Dalian Institute of Chemical Physics, Chinese Academy of Sciences, China*.

3:40 PM Creating New Reactions of C1 Chemistry: Direct Synthesis of Para-Xylene and Jet Fuel. **Noritatsu Tsubaki** and Guohui Yang, *University of Toyama, Japan*.

4:00 PM CO_2-Free Conversion of CH_4 to Syngas Using Lattice Oxygen. **Felix Donat** and Christoph Müller, *ETH Zürich, Switzerland*.

4:20 PM Non-Thermal Plasma and Catalysis for CH_4 and CO_2 Conversion: Influence of Metal Oxides Properties. Nassim Bouchoul[1], Elodie Fourre[1], Houcine Touati[1], Jean-Marc Clacens[2], Isabelle Gener[2], Alysson Duarte[3], Nathalie Tanchoux[4] and **Catherine Batiot-Dupeyrat**[2], *(1)IC2MP-Université de Poitiers, France, (2)IC2MP/CNRS-University of Poitiers, France, (3)ICGM-MACS, France, (4)Institut Charles Gerhardt Montpellier, France*.

4:40 PM Direct Production of Value-Added Chemicals from Syngas Conversion over Co_2c-Based Catalysts. **Liangshu Zhong**, Tiejun Lin and Yuhan Sun, *Shanghai Advanced Research Institute, Chinese Academy of Sciences, China*.

17th ICC Technical Program - Wednesday

Seaport FGH

WEDNESDAY MORNING

Supported Metals 5

9:40 AM Propane Dehydrogenation over Pt Clusters Localized at the Sn Single-Site in Zeolite Framework. **Haibo Zhu**, *Fuzhou University, China*.

10:00 AM Tandem Reactions of CO_2 Reduction and Ethane Upgrading. **Zhenhua Xie**[1,2], Binhang Yan[1,3], Ji Hoon Lee[1,2] and Jingguang Chen[1,2], *(1)Brookhaven National Laboratory, USA, (2)Columbia University, USA, (3)Tsinghua University, China*.

10:20 AM Platinum–Copper Single Atom Alloy Catalysts with High Performance Towards Glycerol Hydrogenolysis. **Guoqing Cui**, Xi Zhang, Min Wei and Xue Duan, *Beijing University of Chemical Technology, China*.

10:40 AM Dilute Pd/Au Alloys Replace the Au/TiO_2 Interface for Selective Oxidation Reactions. **Cody Wrasman**, Andrew Riscoe, Hyosun Lee and Matteo Cargnello, *Stanford University, USA*.

11:00 AM $Au^{\delta+}$–in_2O_{3-X} Catalyst for Selective Hydrogenation of CO_2 to Methanol: Boosting Conversion, Selectivity and Stability through Metal-Support Interaction. **Ning Rui**[1,2], Feng Zhang[1], Kaihang Sun[2], Zongyuan Liu[1], Sanjaya Senanayake[1], Jose A. Rodriguez[1] and Chang-Jun Liu[2], *(1)Brookhaven National Laboratory, USA, (2)Tianjin University, China*.

11:20 AM Tuning CO_2 Hydrogenation at Polymer/Metal Interfaces. **Chengshuang Zhou** and Matteo Cargnello, *Stanford University, USA*.

11:40 AM Novel Single-Pot Coupled Process for Sustainable Hydrogenation in the Absence of an External Hydrogen Supply. **Chiara Pischetola**, Laura Collado, Mark Keane and Fernando Cárdenas-Lizana, *Heriot-Watt University, United Kingdom*.

12:00 PM ***KEYNOTE*** **Active Site Dynamics in Catalysis. Philippe Sautet**, *University of California, Los Angeles, USA*.

WEDNESDAY AFTERNOON

Environmental Catalysis 4

2:00 PM A Heterogeneous System for Alkane Rearrangement: A Means to Depolymerize Polyethylene at Low Temperature (< 200°C). **Lucas Ellis** and Gregg Beckham, *National Renewable Energy Laboratory, USA*.

2:20 PM PtRu Nanoparticles Partially Embedded in the Skeleton of 3DOM $Ce_{0.7}Zr_{0.3}O_2$: Highly Stable Catalysts for Toluene Combustion. Hongxing Dai and **Wenbo Pei**, *College of Environmental and Energy Engineering/Beijing University of Technology, China*.

2:40 PM Impact of Pd-Cu Interaction Vs Structural Properties of $Ce_xZr_{1-X}O_2$ in Catalytic Water Denitrification on Pd-Cu/$Ce_xZr_{1-X}O_2$. **Pascal Granger**, *University of Lille, France*.

3:00 PM Boron Nitride Photocatalytically Degrades Perfluorooctanoic Acid. Lijie Duan[1,2], Bo Wang[1,3], **Kimberly Heck**[1,3], Chelsea A. Clark[1,3], Sujin Guo[1,3], Minghao Wang[2], Manav Bhati[1], Thomas Senftle[1], Paul Westerhoff[3,4], Xianghua Wen[2], Yonghui Song[2] and Michael S. Wong[1,3], *(1)Rice University, USA, (2)Tsinghua University, China, (3)Nanotechnology Enabled Water Treatment (NEWT) Center, USA, (4)Arizona State University, USA*.

3:20 PM Identification and Fabrication of Specific Chemical Speciation As Active Sites in Zeolites and Application in Selective Adsorption Desulfurization and Catalytic Reactions. **Lijuan Song**[1,2], Yun Zu[1,2], Yucai Qin[1] and Yu Hui[1,2], *(1)Key Laboratory of Petrochemical Catalytic Science and Technology, Liaoning ShiHua University, Fushun 113001, Liaoning Province, P. R. China, China, (2)College of Chemistry and Chemical Engineering, China University of Petroleum (East China), Qingdao 266555, Shandong Province, P. R. China, China*.

3:40 PM Degradation of NO_3^- and NO_2^- Pollutants in Wastewater Using $ZnFe_2O_4$ Nanoparticles. **Kuen-Song Lin**, Janina Carrera, Cheng-Ling Yang, You-Sheng Lin and Zong-Wei Chen, *Yuan Ze University, Taiwan*.

4:00 PM Revealing the Active Site for Propene Oxidation Using Uniform Pd and Pt Bimetallic Nanocrystal Catalysts. **An-Chih Yang**[1], Verena Streibel[1], Tej Choksi[2], Hassan Aljama[3], Cody Wrasman[1], Luke T. Roling[4], Emmett Goodman[1], Simon Bare[3], Roel Sanchez[5], Ansgar Schaefer[6], Yuejin Li[5], Frank Abild-Pedersen[7] and Matteo Cargnello[1], *(1)Stanford University, USA, (2)Purdue University, USA, (3)SLAC National Accelerator Laboratory, USA, (4)Iowa State University, USA, (5)BASF Corporation, USA, (6)BASF SE, Germany, (7)SLAC National Laboratory, USA*.

4:20 PM Effect of Water Addition on Catalytic Activity for CO_2 Purification in Oxyfuel Combustion Conditions. Joudia Akil[1], Stéphane Siffert[1], Laurence Pirault-Roy[2], Fengjao Shen[1], Weidong Chen[1], Renaud Cousin[1] and **Christophe Poupin**[1], *(1)University of Opal Cost, France, (2)IC2MP, Institute of Chemistry of Poitiers: Materials and Natural Resources/University of Poitiers, France*.

4:40 PM Lignin Valorization in Organosolv Pulping By Hydrogen Transfer on Copper-Nickel Mixed Oxide Catalysts from LDH. **Iqra Zubair Awan**[1], Giada Beltrami[2], Danilo Bonincontro[3,4], Olinda Gimello[5], Thomas Cacciaguerra[5], Nathalie Tanchoux[5], Annalisa Martucci[2], Stefania Albonetti[4], Fabrizio Cavani[3,4] and Francesco Di Renzo[5], *(1)University of the Punjab, Pakistan, (2)University of Ferrara, Italy, (3)Università di Bologna, Italy, (4)University of Bologna, Italy, (5)Univ Montpellier CNRS ENSCM, France*.

17th ICC Technical Program - Wednesday

Harbor ABC

WEDNESDAY MORNING

Catalyst Synthesis and Characterization 5

9:40 AM A Simple Synthesis of Supported, Dilute Limit Alloy Nanoparticles. Andy De Castro[1] and **John R. Regalbuto**[2], *(1)Univeristy of South Carolina, USA, (2)University of South Carolina, USA*.

10:00 AM Probing the Nature of Active Sites of Bimetallic Pdbi/Al_2O_3 Catalysts for Selective Catalytic Oxidative Esterification of Benzaldehydes to Methyl Benzoate with O_2. **Wen-Sheng Lee**[1], Joo Kang[2], Steve Rozeveld[2], Scott Sprague[1], Cole Rechsteiner[1], Siaka Yusuf[2], Christopher Menzies[1] and Brain Landes[2], *(1)The Dow Chemical Company, USA, (2)Dow, USA*.

10:20 AM Selective Hydrogenation of Acetylene over Cu-Pd and Ag-Pd Catalysts. **Madelyn R. Ball**, Keishla Rivera-Dones, Elise Gilcher, Cole Hullfish, Samantha Ausman and James A. Dumesic, *University of Wisconsin - Madison, USA*.

10:40 AM Supported Silver Catalysts Prepared Via Melt Infiltration: Synthesis, Characterization and Catalytic Performance. **Petra H. Keijzer**, Baira Donoeva, Jovana Zečević, Krijn P. de Jong and Petra E. de Jongh, *Utrecht University, Netherlands*.

11:00 AM Fine Tuning Au-Pd Core-Shell Catalysts for Oxidations and Hydrogenations. **Liane Rossi**[1], Ofelia Yang[1], Karla Caetano[1], Adriano Braga[1], Jhonatan Fiorio[1], Tiago Silva[1], Adam Hoffman[2] and Simon Bare[2], *(1)University of São Paulo, Brazil, (2)SLAC National Accelerator Laboratory, USA*.

11:20 AM Visualizing Early-Stages Fragmentation Behavior in Silica-Supported Metallocene Catalysts at Different Reaction Conditions. **Silvia Zanoni**[1], Alexandre Welle[2], Aurélien Vantomme[2] and Bert M. Weckhuysen[1], *(1)Utrecht University, Netherlands, (2)Total Research & Technology, Belgium*.

11:40 AM Correlated X-Ray Ptychography and Fluorescence Nano-Tomography on the Fragmentation Behavior of an Individual Catalyst Particle during the Early Stages of Olefin Polymerization. **Koen Bossers**[1], Roozbeh Valadian[1], Silvia Zanoni[1], Remy Smeets[2], Nicolaas Friederichs[2], Jan Garrevoet[3], Florian Meirer[1] and Bert M. Weckhuysen[1], *(1)Utrecht University, Netherlands, (2)SABIC, Netherlands, (3)Deutsches Elektronen-Synchrotron DESY, Germany*.

12:00 PM Nanostructure and Morphology of $MgCl_2$ Particles in Ziegler-Natta Catalysts for Olefin Polymerization. **Alessandro Piovano**[1,2], Toru Wada[2,3], Maddalena D'Amore[1], Paolo Bruzzese[1], Gentoku Takasao[3], Patchanee Chammingkwan[2,3], Bartolomeo Civalleri[1], Silvia Bordiga[1,2], Toshiaki Taniike[2,3] and Elena Groppo[1,2], *(1)University of Torino, Italy, (2)Dutch Polymer Institute (DPI), Netherlands, (3)Graduate School of Advanced Science and Technology, JAIST, Japan*.

12:20 PM Revealing the Influence of Metal-Alkyls on Early-Stage Cr/SiO_2 Ethylene Polymerization. **Maarten Jongkind**[1], Florian Meirer[1], Koen Bossers[1], Iris ten Have[1], Hendrik Ohldag[2], Theo van Kessel[3], Nicolaas Friederichs[3] and Bert M. Weckhuysen[1], *(1)Utrecht University, Netherlands, (2)Advanced LightSource, USA, (3)SABIC, Netherlands*.

WEDNESDAY AFTERNOON

Catalyst Synthesis and Characterization 6

2:00 PM Selective Dissolution to Synthesize High-Density Single-Atom Catalyst of Platinum Supported on Manganese Oxide for Total Oxidation Reactions. **Yang Weinan** and Junhua Li, *Tsinghua University, China*.

2:20 PM Watching Nanoparticles Grow: Studying the Reduction of Nickel Phyllosilicates Using *in Situ* Transmission Electron Microscopy. **Savannah Turner**, Jovana Zečević and Krijn P. de Jong, *Utrecht University, Netherlands*.

2:40 PM Understanding Relationships between the Structure of Atomically Dispersed Pt Catalysts and Their Stability and Reactivity. **Joaquin Resasco**[1], Leo DeRita[1], Sheng Dai[2], Mingjie Xu[2], Xingxu Yan[2], Adam Hoffman[3], George W. Graham[4], Simon Bare[3], Xiaoqing Pan[2] and Phillip Christopher[1], *(1)University of California Santa Barbara, USA, (2)University of California, Irvine, USA, (3)SLAC National Accelerator Laboratory, USA, (4)University of California Irvine, USA*.

3:00 PM Surface Encapsulation of Homogeneous Catalyst. **Bin Zhang** and Yong Qin, *Institute of Coal Chemistry, Chinese Academy of Sciences, China*.

3:20 PM Thermally Stable Ceria-Supported Single-Atom Catalysts for Low-Temperature CO and Methane Oxidation. Xavier Isidro Pereira Hernandez[1], Ryan Nicholas Alcala[2], Carlos Eduardo Garcia Vargas[1], Dong Jiang[1], Abhaya Datye[2] and **Yong Wang**[1,3], *(1)Washington State University, USA, (2)University of New Mexico, USA, (3)Pacific Northwest National Laboratory, USA*.

3:40 PM Characterization and Solid Base Catalysis of Ball-Milled Boron Nitride. **Atsushi Takagaki**[1], Masaaki Yoshida[2], Keiko Jimura[3], Shigenobu Hayashi[3] and Tatsusmi Ishihara[1], *(1)Kyushu University, Japan, (2)Yamaguchi University, Japan, (3)National Institute of Advanced Industrial Science and Technology, Japan*.

4:00 PM Why Prepare Catalysts By Mechanochemistry? Following the Mechanochemical Synthesis of LaMnO3 and Its Structural Properties for Enhanced Catalysis By Synchrotron Techniques. **Rachel Blackmore** and Peter Wells, *University of Southampton, United Kingdom*.

4:20 PM Optimized Dry Mechano-Chemical Synthesis of Pd/CeO_2 Catalysts with Enhanced Methane Oxidation Activity. Alessandro Trovarelli and **Maila Danielis**, *University of Udine, Italy*.

4:40 PM New Insight about the Nature of Acid Sites in Zeolite Tmpo-Loaded HZSM-5 Probed with Multimensional ^{31}p Solid-State NMR Techniques. Carlos Bornes, Mariana Sardo, **Jeffrey Amelse**, Luis Mafra and João Rocha, *CICECO - Aveiro Institute of Materials, Portugal*.

17th ICC Technical Program - Wednesday

Harbor DEF

WEDNESDAY MORNING

Environmental Catalysis 3

9:40 AM Transient Kinetic Analysis of the Reduction Half Cycle in the Selective Catalytic Reduction of NOx at Low Temperature on Cu-CHA Catalysts. Tommaso Selleri[1], Wenshuo Hu[2], Federica Gramigni[1], Endre Fenes[3], Hongfei Ma[3], Kumar Ranjan Rout[3], Isabella Nova[1], **Enrico Tronconi**[1], Xiang Gao[2], De Chen[3] and Kefa Cen[2], *(1)Politecnico di Milano, Italy, (2)Zhejiang University, China, (3)Norwegian University of Science and Technology, Norway*.

10:00 AM Improved Twc Performance and Oxygen Storage of Rhodium Supported on Pyrochlore Ceria Zirconia. **Jason Wu** and Giovanni Cavataio, *Ford Motor Company, USA*.

10:20 AM Ceria Manganese Mixed Oxides for Low Temperature Emission Control Catalyst. Ruiari O'Donnell, Kathryn Ralphs, Haresh Manyar and **Nancy Artioli**, *Queen's University Belfast, United Kingdom*.

10:40 AM Bulk Vanadium Oxide Catalyst for Low-Temperature Selective Catalytic Reduction (NH_3-SCR) below 150°C. **Yusuke Inomata**[1], Eiji Kiyonaga[2], Keiichiro Morita[2], Kenji Hikino[2], Kazuhiro Yoshida[2], Hiroe Kubota[3], Takashi Toyao[3], Ken-ichi Shimizu[3], Masatake Haruta[1] and Toru Murayama[1], *(1)Tokyo Metropolitan University, Japan, (2)The Chugoku Electric Power Company, Incorporated, Japan, (3)Hokkaido University, Japan*.

11:00 AM Supported Fe-Ni Alloy As an Alternative Three-Way Catalyst. **Hiroshi Yoshida**[1,2], Yuki Kawakami[1], Wakana Tokuzumi[1], Yushi Shimokawa[1], Taiki Hirakawa[1], Junya Ohyama[1,2] and Masato Machida[1,2], *(1)Kumamoto University, Japan, (2)Kyoto University, Japan*.

11:20 AM Improving PGM Efficiency through Metal-Oxide Interaction. **Yuejin Li**[1], Xiaolai Zheng[1], Andreas Sundermann[2], Shiang Sung[1], Ke-Bin Low[1], Haiyang Zhu[1] and Robert M. Palomino[1], *(1)BASF Corporation, USA, (2)hte GmbH, Germany*.

11:40 AM Dosc As a Key Parameter Correlated to EM Performance of Twc. **Dalyoung Yoon**, Changho Jung and Chang Hwan Kim, *Hyundai Motor Company, Korea, Republic of (South)*.

12:00 PM Trends in the Electrocatalytic Nitrate Reduction Reaction across Transition Metals and Alloys. Jinxun Liu, Zixuan Wang, Danielle Richards, Samuel Young, Nirala Singh and **Bryan Goldsmith**, *University of Michigan, Ann Arbor, USA*.

12:20 PM Enhancement of Copper Catalysts Stability for Catalytic Ozonation in Water Treatment Using ALD Overcoating. Wenwen Yang[1], Zheng Lu[2], Bernhard Vogler[1], Tingting Wu[1] and **Yu Lei**[3], *(1)University of Alabama in Huntsville, USA, (2)Argonne National Laboratory, USA, (3)The University of Alabama in Huntsville, USA*.

WEDNESDAY AFTERNOON

Supported Metals 6

2:00 PM Key Factors in the Catalyst Design for CO and CO_2 Methanation. Thien An Le, Ji Eun Kim and **Eun Duck Park**, *Ajou University, Korea, Republic of (South)*.

2:20 PM Synergistic UV and Visible Photo-Activation Enables Intensified Low-Temperature Methanol Synthesis over $Cu/ZnO/Al_2O_3$. **Roong Jien Wong**, *RMIT University, Australia*.

2:40 PM Innovation in Fischer-Tropsch through Changes in Selectivity for Sustainable Products. **James Paterson**, *BP International, United Kingdom*.

3:00 PM Microenvironment Engineering of Metal Nanoparticles in Silica Nanoreactors for Enhanced Hydrogenations. **Qihua Yang**, *Dalian Institute of Chemical Physics, Chinese Academy of Sciences, China*.

3:20 PM Development of Reusable Combined Catalysts of Ir Complexes and Solid Metal Oxides for Dehydrogenative Reactions. Daijiro Sorada[1], **Kenji Wada**[1], Qi Feng[1], Kenji Hara[2], Masaaki Nishioka[3] and Ken-ichi Fujita[3], *(1)Kagawa University, Japan, (2)Tokyo University of Technology, Japan, (3)Kyoto University, Japan*.

3:40 PM Micro/Mesoporous Au@SiO_2 Core-Shell Nanoparticles for the Selective Benzyl Alcohol Oxidation. Ellis Hammond-Pereira, Kristin Bryant, Rebecca Landron, Trent Graham, Chen Yang, Di Wu and **Steven Saunders**, *Washington State University, USA*.

4:00 PM Highly Efficient Bimetallic Nanoparticle Catalysts for Selective Hydrogenation of Amides to Amines Under Mild Conditions. **Takato Mitsudome**[1], Tomoo Mizugaki[1], Jun Yamasaki[1] and Seiji Yamazoe[2], *(1)Osaka University, Japan, (2)Tokyo Metropolitan University, Japan*.

4:20 PM Proximity Effects, Mechanistic Insights, and the Nature of Molecular Shuttles in Catalytic Hydrogenations Involving Bifunctional Cascades. **Ari Fischer**[1] and Enrique Iglesia[2], *(1)University of California, Berkeley, USA, (2)University of California, USA*.

4:40 PM Catalytic Pyrolysis of Used Tires on Metal Catalysts of Ni, Co and Pd Supported in SiO2 to Obtain Hydrocarbons of Interest in the Chemical Industry. **Tamara Menares**[1,2], Luis Arteaga[3], Paula Osorio[2], Romina Romero[1] and Romel Jiménez[4], *(1)Unidad de Desarrollo tecnológico, Chile, (2)Universidad del Bío-Bío, Chile, (3)University of Bio-Bio, Chile, (4)University of Concepcion, Chile*.

17th ICC Technical Program - Wednesday

Harbor GHI

WEDNESDAY MORNING

C1 Chemistry 2

9:40 AM Pt-Supported Mesoporous Indium Oxide As a Superior Catalyst for Methanol Synthesis By CO_2 hydrogenation. **Jianyang Wang**[1], Jie Zhu[1], Guanghui Zhang[1], Xinwen Guo[1] and Chunshan Song[2], *(1)Dalian University of Technology, China, (2)Pennsylvania State University, USA*.

10:00 AM Unravelling the Fe Promoter Effect on the CO_2 Methanation Reaction over Ni-Al Catalysts By Time-Resolved Aging and Selective Doping. **Thomas Burger**, Hannah M. S. Augenstein, Klaus Köhler and Olaf Hinrichsen, *Technical University of Munich, Germany*.

10:20 AM Selective CO_2 Hydrogenation over Supported Rh Catalysts: Switching the Selectivity By Using Metal Phosphate As a Support. **Tetsuya Shishido**[1,2], Junpei Suzuki[1] and Hiroki Miura[1,2], *(1)Tokyo Metropolitan University, Japan, (2)Kyoto Univrersity, Japan*.

10:40 AM Cu-Zn-Ce Ternary Catalysts with Improved Methanol Selectivity in CO_2 Hydrogenation. **Jiadong Zhu**, Nikolay Kosinov and Emiel J. M. Hensen, *Eindhoven University of Technology, Netherlands*.

11:00 AM Leveraging Structure Sensitivity in CO_2 Valorization over Nickel. **Matteo Monai**[1], Charlotte Vogt[1], Ellen Sterk[1], Jonas Palle[1], Angela E. M. Melcherts[1], Bart Zijlstra[2], Esther Groeneveld[3], Peter Berben[3], Jelle Boereboom[1], Emiel J. M. Hensen[2], Florian Meirer[1], Ivo Filot[2] and Bert M. Weckhuysen[1], *(1)Utrecht University, Netherlands, (2)Eindhoven University of Technology, Netherlands, (3)BASF Nederland B.V., Netherlands*.

11:20 AM Highly Selective Conversion of CO_2 to Value-Added Hydrocarbons. **Peng Gao**, Shanshan Dang, Xu Cui and Yuhan Sun, *Shanghai Advanced Research Institute, Chinese Academy of Sciences, China*.

11:40 AM Revealing the Dynamics of Sabatier Reaction By IR Thermography. **Emanuele Moioli**[1,2,3], Robin Mutschler[1,2] and Andreas Züttel[1,4], *(1)EMPA, Switzerland, (2)Swiss Federal Institute of Technology Lausanne, EPFL, Switzerland, (3)Paul Scherrer Institute, Switzerland, (4)Ecole polytechnique fédérale de Lausanne (EPFL), Switzerland*.

12:00 PM Low-Temperature Plasma Activated Catalytic CO_2 Hydrogenation: A Mechanistic Study. **Xiaolei Fan**, Huanhao Chen, Yibing Mu, Shanshan Xu and Christopher Hardacre, *The University of Manchester, United Kingdom*.

12:20 PM Dry Reforming of Methane Using Multilayered Vanadium Carbide Mxene As Catalytic Precursor. **Carlos Carrero** and Raj Thakur, *Auburn University, USA*.

WEDNESDAY AFTERNOON

Electrocatalysis and Photocatalysis Fundamentals 3

2:00 PM Synthesis of PdAu Bimetallic Plasmonic Nanoparticles within Hierarchically-Porous Architectures for Synergistic Catalysis Under Visible Light Irradiation. **Priyanka Verma**, Matthew Potter, Alice Oakley and Robert Raja, *University of Southampton, United Kingdom*.

2:20 PM Interfacial Issues in Photoelectrochemical Water Splitting. **Tingting Yao**[1,2], Jiangping Ma[1,2] and Can Li[1,2], *(1)Dalian Institute of Chemical Physics, China, (2)Dalian National Laboratory for Clean Energy, China*.

2:40 PM Bioinspired Photoelectrocatalysis for Efficient Water Splitting. **Sheng Ye** and Can Li, *Dalian Institute of Chemical Physics, Chinese Academy of Sciences, China*.

3:00 PM Guidelines for Optimizing the Performance of Metal–Insulator–Semiconductor Water Splitting Photoelectrocatalysts. John Hemmerling, Joseph Quinn and **Suljo Linic**, *University of Michigan, USA*.

3:20 PM $BaTaO_2n$ Nitrided from a Perovskite-Type Oxide for Efficient Photocatalytic Oxygen Evolution. **Takashi Hisatomi**[1], Shraddha Jadhav[1,2], Shuta Hasegawa[3] and Kazunari Domen[1,3], *(1)Shinshu University, Japan, (2)Universidad de Guanajuato, Mexico, (3)The University of Tokyo, Japan*.

3:40 PM Oxygen-Assisted Stabilization of Single-Atom Au during Photocatalytic Hydrogen Evolution. **CAN Xue**, *NANYANG TECHNOLOGICAL UNIVERSITY, Singapore*.

4:00 PM Core-Shell Nanostructures of Graphene Wrapped CdS Nanoparticles and TiO_2 (CdS@G@TiO_2): The Role of Graphene in Achieving Enhanced Photocatalytic H_2 generation. **Muhammad Zubair**[1], Magnus Rønning[2] and Jia Yang[3], *(1)NTNU, Norway, (2)Norwegian University of Science and Technology (NTNU), Norway, (3)Norwegian University of Science and Technology, Norway*.

4:20 PM Anti-Markovnikov Photocatalytic Hydroamination of Alkenes Using Aqueous Ammonia By Metal Loaded Titanium Oxide. **Soyeong Park**, Jaeyoung Jeong, Ken-ichi Fujita, Akira Yamamoto and Hisao Yoshida, *Kyoto University, Japan*.

4:40 PM Photocatalytic Synthesis of Hydrogen Peroxide Using MOF Materials. **Hiromi Yamashita**[1], Kohsuke Mori[1] and Yasutaka Kuwahara[2], *(1)Osaka University, Japan, (2)JST, PRESTO, Japan*.

17th ICC Technical Program - Wednesday

Coronado AB

WEDNESDAY MORNING

Catalysis with Ordered Porous Materials 5

9:40 AM Sustaining Metal-Organic Frameworks for Water-Gas Shift Catalysis By Non-Thermal Plasma. **Shaojun Xu**[1,2], C. Richard A. Catlow[2,3], Xiaolei Fan[1], Christopher Hardacre[1] and Philip Martin[1], *(1)The University of Manchester, United Kingdom, (2)Cardiff University and The UK Catalysis Hub at Harwell, Rutherford Appleton Laboratory, United Kingdom, (3)University College London, United Kingdom*.

10:00 AM Reaction Mechanism during CO Oxidation on Isolated Single Cu Atoms Supported By Uio-66 Metal-Organic Framework. **Ali Abdel-Mageed**[1], Bunyarat Rungtaweevoranit[2], Jabor Rabeah[3], Angelika Brueckner[3], Omar Yaghi[4] and R.Jürgen Behm[1], *(1)Ulm University, Germany, (2)University of California, Berkeley, USA, (3)Leibniz Institute for Catalysis, Germany, (4)University of California, Berkeley and Lawrence Berkeley National Laboratory, USA*.

10:20 AM Tuning $Zr_{12}O_{22}$ Node Defects As Catalytic Sites in the Metal-Organic Framework Hcp Uio-66. Xi Chen[1], Yinghui Lyu[1], Zhengyan Wang[1], Bruce C. Gates[2] and **Dong Yang**[1], *(1)Nanjing Tech University, China, (2)University of California Davis, USA*.

10:40 AM Hierarchically Mesoporous Core-Shell Uio-66 Materials: Enhanced Catalytic Activity in Sulfide Oxidation Reaction. **Furui Zhang**, Xiaobing Hu, Eric Roth and SonBinh Nguyen, *Northwestern University, USA*.

11:00 AM Heterogenization of Photochemical Molecular Devices: Embedding Metal-Organic Cage into ZIF-8-Derived Matrix to Promote Proton and Electron Transfer. **Jianying Shi**, Yucheng Luo and Chengyong Su, *Sun Yat-Sen University, China*.

11:20 AM Dimerization of 1-Butene on Single-Site Nickel Ions Coordinated at the Nodes of Uio-66 Metal-Organic Framework. **Jian Zheng**[1], Laura Löbbert[2], Oliver Y. Gutierrez[1], Ricardo Bermejo de Val[2], John Fulton[1], Donald M. Camaioni[1] and Johannes Lercher[2], *(1)Pacific Northwest National Laboratory, USA, (2)Technical University of Munich, Germany*.

11:40 AM Catalytic Transfer Hydrogenation of Levulinic Acid over Uio-66 with Ligand Functionalization: Influence of the Hydrophilicity. **Weiyi Ouyang** and Damien Debecker, *Université Catholique de Louvain, Belgium*.

12:00 PM Structure, Dynamics, and Reactivity for Light Alkane Oxidation of Fe(II) Sites Situated in the Nodes of a Metal–Organic Framework. **Matthew Simons**[1], Jenny Vitillo[2], Melike Babucci[3], Adam Hoffman[4], Alexey Boubnov[4], Michelle Beauvais[5], Zhihengyu Chen[5], Christopher Cramer[2], Karena Chapman[5], Simon Bare[4], Bruce C. Gates[3], Connie Lu[2], Laura Gagliardi[2] and Aditya Bhan[1], *(1)University of Minnesota, Twin Cities, USA, (2)University of Minnesota, USA, (3)University of California Davis, USA, (4)SLAC National Accelerator Laboratory, USA, (5)Stony Brook University, USA*.

12:20 PM Engineered Metal-Organic Frameworks and Enzymes for the Synthesis of Active Pharmaceutical Ingredients. **Francisco G Cirujano**, *University of Valencia, Spain*.

WEDNESDAY AFTERNOON

Catalysis with Ordered Porous Materials 6

2:00 PM Composite of Nitrogen-Containing Carbon and Ordered Mesoporous Silica As Solid Base Catalyst for Knoevenagel Condensation. Kengo Takama, Satoshi Inagaki and **Yoshihiro Kubota**, *Yokohama National University, Japan*.

2:20 PM Mesoporous Support for Concerted Catalysis: Immobilized Metal Complex-Catalyzed Fine Chemical Synthesis. **Ken Motokura**[1], Marika Ikeda[1], Sae Kawashima[1], Kohei Hashiguchi[1], Masayuki Nambo[1], Wang-Jae Chun[2] and Yuichi Manaka[1,3], *(1)Tokyo Institute of Technology, Japan, (2)International Christian University, Japan, (3)National Institute of Advanced Industrial Science and Technology, Japan*.

2:40 PM Tuning the Selectivity of Ldhs By Changing the Chemical Composition and Preparation Route. **Octavian D. Pavel**[1], Elisabeta Stamate[1], Bogdan Cojocaru[1], Rodica Zavoianu[1], Ruxandra Birjega[2] and Vasile Parvulescu[1], *(1)University of Bucharest, Romania, (2)National Institute for Lasers, Plasma and Radiation Physics, Romania*.

3:00 PM Understanding Solvent Effects on Adsorption and Protonation in Porous Catalysts. **Bingjun Xu**, *University of Delaware, USA*.

3:20 PM Pd Nanoparticles and Aminopolymers Confined in Hollow Silica Spheres for Selective Hydrogenation Reactions. **Yasutaka Kuwahara**[1,2], Hiroto Kango[1] and Hiromi Yamashita[1,3], *(1)Osaka University, Japan, (2)JST, PRESTO, Japan, (3)Kyoto University, Japan*.

3:40 PM Core-Shell Pt/Al_2O_3@Cu/Zeolite for Selective Oxidation of NH_3. Rajat Ghosh[1], **Michael P. Harold**[1], Thuy Le[1], Jeffrey D. Rimer[1] and Di Wang[2], *(1)University of Houston, USA, (2)Cummins Inc., USA*.

4:00 PM Unique Catalytic Properties of 3D Graphene-like Microporous Carbons Synthesized in a Zeolite Template. **Petr Sazama**[1], Jana Pastvova[1], Vasile Parvulescu[2], Petr Klein[1], Jürgen Seidel[3], Jiri Rathousky[1], Alena Vondrova[1], Galina Sadovska[1] and Jaroslava Moravkova[1], *(1)J. Heyrovský Institute of Physical Chemistry of the CAS, Czech Republic, (2)University of Bucharest, Romania, (3)Institut für Physikalische Chemie, TU Bergakademie Freiberg, Germany*.

4:20 PM Effect of Heteroatoms in Porous Carbon Used As Support Material Forco Oxidation. **Helena Kaper**, Daniel Aubert and Mangesh Avhad, *CNRS, France*.

4:40 PM Enhanced Propylene Yield over Bimetallic Mo-Nb Silicates for Olefin Metathesis. **Anoop Uchagawkar**[1], Denis Johnson[1,2], Anand Ramanathan[3] and Bala Subramaniam[1], *(1)The University of Kansas, USA, (2)University of Pittsburgh at Johnstown, USA, (3)Chevron Phillips Chemical Company, USA*.

17th ICC Technical Program - Wednesday

Coronado CD

WEDNESDAY MORNING

Catalysis for Biomass Conversion 5

9:40 AM Effect of Catalyst Properties on Product Selectivity from Low Pressure Hydrodeoxygenation of Lignin Pyrolysis Vapors. **Alireza Saraeian** and Brent H. Shanks, *Iowa State University, USA*.

10:00 AM Enhancing Bio-Oil Quality and Energy Recovery By Atmospheric Hydrodeoxygenation of Wheat Straw Pyrolysis Vapors. **Andreas Eschenbacher**[1], Peter A. Jensen[1], Ulrik B. Henriksen[1], Jesper Ahrenfeldt[1], Uffe V. Mentzel[2], Alireza Saraeian[3], Brent H. Shanks[3] and Anker D. Jensen[1], *(1)Technical University of Denmark, Denmark, (2)Haldor Topsøe A/S, Denmark, (3)Iowa State University, USA*.

10:20 AM Mixed Metal Oxides Catalysts for Treatment of Beech Wood Pyrolysis Vapors. **William R. Locatel**, Dorothée Laurenti, Nolven Guilhaume and Yves Schuurman, *Univ Lyon, CNRS, France*.

10:40 AM The Interaction of Bio-Oil with Pillared Clay Supported Nickel-Molybdenum Catalysts. **Indri Adilina**[1] and S.F. Parker[2], *(1)Indonesian Institute of Sciences, Indonesia, (2)ISIS Facility, STFC Rutherford Appleton Laboratory, United Kingdom*.

11:00 AM Catalytic Hydropyrolysis – Effect of CoMo Loading and Support Acidity. Magnus Zingler Stummann[1], Asger B. Hansen[2], Jostein Gabrielsen[2], Peter A. Jensen[1], Martin Høj[1] and **Anker D. Jensen**[1], *(1)Technical University of Denmark, Denmark, (2)Haldor Topsoe A/S, Denmark*.

11:20 AM Continuous Stable Production of Platform Chemicals from Raw Bio-Oil over Femop/Zeolite Catalysts. **Idoia Hita**[1], Tomas Cordero-Lanzac[2], Giuseppe Bonura[3], Catia Cannilla[3], Pedro Castaño[1], Francesco Frusteri[3] and Javier Bilbao[2], *(1)King Abdullah University of Science & Technology, Saudi Arabia, (2)University of the Basque Country, Spain, (3)CNR_-TAE, Italy*.

11:40 AM Conversion of Ethanol to Distillate-Range Fuels through Alcohol Coupling and Etherification Reaction Pathways. **George Huber**[1], Nathaniel Eagan[2], Paolo Cuello Penaloza[1] and Michael Lanci[3], *(1)University of Wisconsin-Madison, USA, (2)Tufts University, USA, (3)ExxonMobil Research and Engineering, USA*.

12:00 PM Shifting the Paraffin-to-Olefin Product Ratio during DME Homologation with Bimetallic/BEA Catalysts to Improve Fuel Properties. **Daniel Ruddy**[1], Connor Nash[1], Daniel Dupuis[1], Carrie Farberow[1], Anh To[1], Anurag Kumar[1], Kinga A. Unocic[2], Susan Habas[1], Evan Wegener[3], Jeffrey T. Miller[4], Jesse Hensley[1] and Joshua Schaidle[1], *(1)National Renewable Energy Laboratory, USA, (2)Oak Ridge National Laboratory, USA, (3)Argonne National Laboratory, USA, (4)Purdue University, USA*.

12:20 PM Valorization of Cellulose into Sorbitol: Bifunctional Catalysts with Sulfonic Functions and Ru Nanoparticles Supported on N-Doped Carbons. **Samuel Carlier** and Sophie Hermans, *UCLouvain, Belgium*.

WEDNESDAY AFTERNOON

Catalysis for Biomass Conversion 6

2:00 PM Direct Synthesis of Dideoxy Sugars from Methyl Glycosides over Heterogeneous ReO_x-Pd/CeO_2 and ReO_x-Au/CeO_2 Catalysts. **Masazumi Tamura**, Ji Cao, Yoshinao Nakagawa and Keiichi Tomishige, *Tohoku University, Japan*.

2:20 PM Mechanism of Hydrodeoxygenation: Catalyst Characterization and Isotope Incorporation. Kyle Stephens, Alysha Bell and **Alan Allgeier**, *University of Kansas, USA*.

2:40 PM Catalytic H_2 Production from Cellulose on Ni Particles Supported on Mixed Oxides. Jian Zhang and **Jing He**, *Beijing University of Chemistry Technology, China*.

3:00 PM Glucose, Fructose, Isomerization. **Irina Delidovich**, Guido Schroer, Matthias Fischer and Tobias Zensen, *RWTH Aachen University, Germany*.

3:20 PM Support Properties Modulate the Catalytic Activity of Tungstate Domains in Hydronium Ion-Catalyzed Alcohol Dehydration. **Niklas Pfriem**[1], Hui Shi[1], Gary L. Haller[2] and Johannes Lercher[1,3], *(1)Technical University of Munich, Germany, (2)Yale University, USA, (3)Pacific Northwest National Laboratory, USA*.

3:40 PM Photocatalytic Valorization of Glycerol to Chemicals and Hydrogen. **Valeriia Maslova**, Francesco Luca Basile and Stefania Albonetti, *University of Bologna, Italy*.

4:00 PM Production of Chemicals from Sugars Via Glycolaldehyde. **Esben Taarning**[1], Christian B. Schandel[2], Christian M. Osmundsen[1], Martin Høj[2], Anker D. Jensen[2], Juan Martínez-Espín[1] and Søren Tolborg[1], *(1)Haldor Topsøe A/S, Denmark, (2)Technical University of Denmark, Denmark*.

4:20 PM Catalyst Evolution Enhances Production of Xylitol from Acetal-Stabilized Xylose. **Ydna Questell-Santiago** and Jeremy Luterbacher, *École Polytechnique Fédérale de Lausanne (EPFL), Switzerland*.

4:40 PM The Indium Oxide and Zirconia Physical Mixture for the Isobutene Synthesis from Ethanol. **Bruna J.S. Bronsato**[1], Priscila da Costa Zonetti[2], Cesar Augusto Diaz Mendoza[1], Carla R. Ramos[3], Marcelo E. H. Maia da Costa[1], Odivaldo C. Alves[4], Roberto R. de Avillez[1] and Lucia Gorenstin Appel[2], *(1)Pontifícia Universidade Católica do Rio de Janeiro, Brazil, (2)Instituto Nacional de Tecnologia, Brazil, (3)National Institute of Technology, Brazil, (4)Universidade Federal Fluminense, Brazil*.

17th ICC Technical Program - Thursday

THURSDAY, June 18

Seaport ABC

THURSDAY MORNING

Catalyst Synthesis and Characterization 7

9:40 AM The Limit of Low Dose Electron Microscopy: Measuring Pristine Catalyst Structure One Electron at a Time. **David Yancey**[1], Christian Kisielowski[2], Petra Specht[3], Steve Rozeveld[1] and Joo Kang[1], *(1)Dow, USA, (2)Lawrence Berkeley National Laboratory, USA, (3)University of California, Berkeley, USA*.

10:00 AM K3IS: Cryo-EM Meets Catalysis. **Benjamin Miller**, Anahita Pakzad and Stephen Mick, *Gatan, Inc., USA*.

10:20 AM Observing the Formation of Ni-Mo Alloy@Oxide Core-Shell Catalysts Via *in Situ* Thermal Reduction of $NiMoO_4$ Nanorods Using Environmental TEM. **Stephen House**, Rituja Patil, Judith Yang and James McKone, *University of Pittsburgh, USA*.

10:40 AM ***KEYNOTE*** **Challenges and Opportunities in Developing New Zeolite-Based Catalysts. Stacey I. Zones**, *Chevron Energy Technology Company, USA*.

11:20 AM Exploring Multiple Modalities of (Photo)Catalyst Surfaces with Monochromated Electron Energy-Loss Spectroscopy. **Kartik Venkatraman**, Diane Haiber, Joshua Vincent and Peter Crozier, *Arizona State University, USA*.

11:40 AM Chemoselective Characterization of Brønsted Acid Site Accessibility Using Probe Amine Uptake in Infrared Spectroscopy. **ChoongSze Lee**[1,2], Heng Dai[3], M. Alexander Ardagh[1,2], Jeffrey D. Rimer[3], Michael Tsapatsis[2,4] and Paul J. Dauenhauer[1,2], *(1)The University of Minnesota - Twin Cities, USA, (2)University of Delaware, USA, (3)University of Houston, USA, (4)Johns Hopkins University, USA*.

12:00 PM Atomically Designed Catalysts By Metal Nanoclusters: Insights into the Support and the Structure Evolution By *in Situ* Spectroscopy. **Noelia Barrabes**, Stephan Pollit, Clara Yago, Vera Truttmann and Guenther Rupprechter, *Technische Universität Wien, Austria*.

12:20 PM Design Synthesis of Fe/g-C3N4 Catalysts with Ultra-Small Cluster and Atomically Dispersed Fe Sites and Their Catalytic Performances. **Xinwen Guo**[1], Sufeng An[1], Guanghui Zhang[1], Jeffrey T. Miller[2], Zhongmin Liu[3], Chunshan Song[4] and Keyan Li[1], *(1)Dalian University of Technology, China, (2)Purdue University, USA, (3)Dalian Institute of Chemical Physics, Chinese Academy of Sciences, China, (4)Pennsylvania State University, USA*.

THURSDAY AFTERNOON

Catalysis for Chemical Synthesis 1/2

2:00 PM Turning Down the Heat: Fourth Generation Hydrofluoroalkene Refrigerants Via Molecular Base-Metal Complex Catalysis. **R. Tom Baker**, *University of Ottawa, Canada*.

2:20 PM The New Ammonia Synthesis Catalyst Amomax®-Casale: A Case Study. **Alberto Garbujo**[1], Pierdomenico Biasi[1], Sergio Panza[1], Rene Eckert[2], Stephan Reitmeier[2], Andreas Reitzmann[2] and Stefan Gebert[2], *(1)CASALE SA, Switzerland, (2)Clariant Produkte (Deutschland) GmbH, Germany*.

2:40 PM Highly Selective Synthesis of N-Alkyl Amines Via Kinetic Regulation. Hongli Wang and **Feng Shi**, *Lanzhou Insititute of Chemical Physics, China*.

3:00 PM A Green Process for 4,4-Bisphenol-a Production. **Yan Liu**[1] and Armando Borgna[2], *(1)Institute of Chemical & Engineering Sciences, Singapore, (2)Institute of Chemical and Engineering Sciences, A*Star, Singapore*.

3:50 PM The Role of Support Hydrophobicity in the Hydrogenation of γ–Valerolactone over Cu/SiO_2. **Nicoletta Ravasio**[1], Denise Cavuoto[2], Nicola Scotti[2], Rinaldo Psaro[1] and Federica Zaccheria[1], *(1)CNR - SCITEC, Italy, (2)University of Milano, Italy*.

4:10 PM Enhanced Formaldehyde Yield Via Hydrogenation of CO Using Ionic Liquid As a Co-Solvent. **Nooshin Asadi**, Andrew Hoadley and Akshat Tanksale, *Monash University, Australia*.

4:30 PM ***KEYNOTE*** **Innovation in the Chemical Industry: Novel Catalyst and Process Design for Sustainability and Carbon Circularity. Sandeep Dhingra**, *Dow, USA*.

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THURSDAY MORNING

C1 Chemistry 6

9:40 AM Highly Active and Stable Ferrierite Zeolite for a Gas-Phase DME Carbonylation By Adjusting Al Distributions. **Jong Wook Bae**, *Sungkyunkwan University, Korea, Republic of (South)*.

10:00 AM The Crucial Role of Metal-Zeolite Interaction for Stability of Hybrid Catalysts during CO2-to-DME Hydrogenation. **Giuseppe Bonura**[1], Catia Cannilla[1], Leone Frusteri[2] and Francesco Frusteri[1], *(1)CNR_-TAE, Italy, (2)Messina University, Italy*.

10:20 AM Hydrocarbon Adsorption and Coking Sites on Aluminosilicate H^+-USY Zeolite Catalysts. **Bradley Chmelka**, *University of California Santa Barbara, USA*.

10:40 AM Dynamic Study of the Evolution of Metal Species in ZSM-5 during Activation and Reaction in Direct Methane Dehydroaromatization. **Sheima Khatib**[1], Mustafizur Rahman[1], Apoorva Sridhar[1], Simon Bare[2] and Adam Hoffman[2], *(1)Texas Tech University, USA, (2)SLAC National Accelerator Laboratory, USA*.

11:00 AM Effect of CH_4 Chemical Potential on the Maximum Yield of CH_3oh on Single Site Cu-Mor Materials. Jian Zheng[1], Insu Lee[2], Lei Tao[2], Elena Khramenkova[3], Meng Wang[1], Bo Peng[1], Oliver Y. Gutierrez[1], John Fulton[1], Donald M. Camaioni[1], Evgeny Pidko[3], **Maricruz Sanchez-Sanchez**[2] and Johannes A. Lercher[1,2], *(1)Pacific Northwest National Laboratory, USA, (2)Technical University of Munich, Germany, (3)Delft University of Technology, Netherlands*.

11:20 AM Extra-Framework Aluminum-Assisted First C-C Bond Formation in Methanol-to-Olefins Conversion on Zeolite H-ZSM-5. **Chao Wang**, *Wuhan institute of Physics and Mathematics, CAS, China*.

11:40 AM Controlling the Rate and Reversibility of CH_4 Dehydroaromatization on MoC_x/H-ZSM-5 Catalysts. **Neil Razdan**, Anurag Kumar, Brandon Foley and Aditya Bhan, *University of Minnesota - Twin Cities, USA*.

12:00 PM Effect of the Si/Al Ratio in Ga/Mesoporous HZSM-5 on the Production of Benzene, Toluene, and Xylene Via Coaromatization of Methane and Propane. **Min Yeong Gim**, Changyeol Song, Yong Hyun Lim, Kihun Nam, Haewon Ryu and Do Heui Kim, *Seoul National University, Korea, Republic of (South)*.

12:20 PM Hydrocarbon Pool Mechanism of Methane Dehydroaromatization over Mo/Zeolite Catalysts. **Nikolay Kosinov** and Emiel J. M. Hensen, *Eindhoven University of Technology, Netherlands*.

THURSDAY AFTERNOON

In Situ and Operando Analysis 3/4

2:00 PM In-Situ Studies of the Role of Pt in $CuPt_x$ Single-Atom Alloy Catalysts. Yueqiang Cao[1,2], Tongxin Han[2], Bo Chen[2], Yuanyuan Li[3], Jonathan Guerrero-Sańchez[4], Ilkeun Lee[2], Xinggui Zhou[1], Noboru Takeuchi[2,4], Anatoly Frenkel[5] and **Francisco Zaera**[2], *(1)East China University of Science and Technology, China, (2)University of California Riverside, USA, (3)Stony Brook University, USA, (4)Universidad Nacional Autońoma de México, Mexico, (5)Brookhaven National Laboratory, USA*.

2:20 PM From Nanoparticles to Supported Single-Atoms Catalysts: Establishing a Rational Design to Improve Catalytic Systems Using in Situ Techniques. **Debora Meira**[1,2], Lichen Liu[3], Zou Finfrock[1,2] and Avelino Corma[3], *(1)Canadian Light Source, Canada, (2)CLS@APS, Advanced Photon Source, Argonne National Laboratory, USA, (3)Instituto de Tecnología Química, Spain*.

2:40 PM ***KEYNOTE*** **Redox Properties of Copper Ions in Microporous Frameworks. Silvia Bordiga**, *University of Turin, Italy*.

3:50 PM Bimetallic Nanoparticles Reorganize Differently on Nanoshaped Ceria: An *Operando* Ambient Pressure XPS Study. **Jordi Llorca**[1], Lluís Soler[1], Núria J. Divins[1], Albert Casanovas[1], James Ryan[1] and Carlos Escudero[2], *(1)Universitat Politecnica de Catalunya, Spain, (2)ALBA Synchrotron Light Source, Spain*.

4:10 PM Operando NAP-XPS Unveils Pd Speciation and Reducibility of Nano-Sized Ceria during CO Oxidation. **Valerii Muravev**, Giulia Spezzati, Yaqiong Su and Emiel J. M. Hensen, *Eindhoven University of Technology, Netherlands*.

4:30 PM Locating Pt Single Sites on Ceria – Why Are Pt Single Sites Inactive Oxidation Catalysts?. **Florian Maurer**[1], Jelena Jelic[1], Junjun Wang[2], Andreas Gänzler[1], Paolo Dolcet[1], Christof Wöll[2], Yuemin Wang[2], Felix Studt[2], Maria Casapu[1] and Jan-Dierk Grunwaldt[1], *(1)Karlsruhe Institute of Technology (KIT), Germany, (2)Karlsruhe Institute of Technology, Germany*.

4:50 PM A Combined TAP and AP-XPS Study of Carbon Deposition on Model Pt-in/MgO/SiO_2 Catalysts during Propane Dehydrogenation. **Evgeniy Redekop**[1], Vladimir V Galvita[2], Hilde Poelman[2], Matthias Filez[3,4], Ranjith K. Ramachandran[2], Jolien Dendooven[2], Christophe Detavernier[2], Guy B Marin[2] and Unni Olsbye[1], *(1)University of Oslo, Norway, (2)Ghent University, Belgium, (3)KU Leuven, Belgium, (4)Utrecht University, Netherlands*.

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THURSDAY MORNING

Theory and Computation 1

9:40 AM ***KEYNOTE*** **Volcanos, Cliffs and Ways Around: Strategies to Break Linear Scaling Relationships. Núria López**, *The Barcelona Institute of Science and Technology, Spain*.

10:20 AM Machine Learning Approaches for Catalyst Design: Adsorption of CO on Au-Based Nanocatalysts. **James Lewis**, *Institute of Coal Chemistry, Chinese Academy of Sciences, China*.

10:40 AM Synergy of Metallic Dimer Sites Anchored on C_2n-Graphene Matrix Promotes Electrochemical Reaction: CO_2 RR Vs HER. **Wei An**, *Shanghai University of Engineering Science, China*.

11:00 AM Methane Activation on Metal-CeO_2 Catalysts: Theoretical Insights of the Role of Strong Metal-Support Interactions. **Pablo Lustemberg**[1,2], Sanjaya Senanayake[3], Jose A. Rodriguez[3] and M. Verónica Ganduglia-Pirovano[1], *(1)Instituto de Catálisis y Petroleoquímica (ICP-CSIC), Spain, (2)Instituto de Física Rosario (IFIR-CONICET), Argentina, (3)Brookhaven National Laboratory, USA*.

11:20 AM Computational Elucidation of the Catalytically Active Mononuclear Fe(II) and Co(II) Sites in N Co-Doped Carbon for Electrochemical Oxygen Evolution Reaction. **Rui Shang**[1,2], Stephan Steinmann[3], Bo-Qing Xu[1] and Philippe Sautet[2], *(1)Tsinghua University, China, (2)University of California Los Angeles, USA, (3)Ecole Normale Supérieure de Lyon, France*.

11:40 AM Cluster-Size-Dependent Ethylene Adsorption in $CuCl_2$/r-Alumina Catalyzed Ethylene Oxychlrorination. **Yanying Qi**[1], Endre Fenes[1], Hongfei Ma[1], Yalan Wang[1], Kumar Ranjan Rout[2], Terje Fuglerud[3] and De Chen[1], *(1)Norwegian University of Science and Technology, Norway, (2)SINTEF, Norway, (3)INOVYN, Norway*.

12:00 PM On the Initial Stage Agglomeration of ZrO_2 Supported Rh and Pt Single Atoms and the Role of CO. **Karoliina Honkala** and Minttu Kauppinen, *University of Jyväskylä, Finland*.

12:20 PM Structure-Dependent Microkinetic Analysis of WGS and r-WGS Reactions on Rh. Raffaele Cheula and **Matteo Maestri**, *Politecnico di Milano, Italy*.

THURSDAY AFTERNOON

Environmental Catalysis 6/7

2:00 PM Catalysts for Catalytically Oxidative Removal and Catalysis-Plasmon Cooperative Purification of PM Emitted from Vehicles. **Zhen Zhao**[1,2], Shixin Liu[1], Xuehua Yu[1], Yuechang Wei[2] and Jian Liu[2], *(1)Shenyang Normal University, China, (2)China University of Petroleum, China*.

2:20 PM Low-T CO Oxidation over Cu-CHA Catalysts: Probing the Role of Multinuclear Cu Species. **Roberta Villamaina**[1], Umberto Iacobone[1], Isabella Nova[1], Enrico Tronconi[1], Maria Pia Ruggeri[2], Jillian Collier[2] and David Thompsett[2], *(1)Politecnico di Milano, Italy, (2)Johnson Matthey Technology Centre, United Kingdom*.

2:40 PM Co_3O_4 Spinel with Trapped Alkali for NOx Storage Applications. **Krishna R. Gunugunuri**[1], Torin C. Peck[1], Naoto Nagata[2] and Charles A. Roberts[1], *(1)Toyota Research Institute - North America, USA, (2)TOYOTA MOTOR CORPORATION, Japan*.

3:00 PM Toward the Development of Passive NO_x Adsorbers for Eliminating NO_x Emissions during the Cold-Start Period. Jaeha Lee[1], Yongwoo Kim[1], Jonghyun Kim[1], Youngseok Ryou[1], Eun Won Lee[1], Hyokyoung Lee[2], Chang Hwan Kim[2] and **Do Heui Kim**[1], *(1)Seoul National University, Korea, Republic of (South), (2)Hyundai Motor Company, Korea, Republic of (South)*.

3:50 PM High Performance of Ptba-Supported Manganese-Based Catalysts for NOx Storage and Reduction. Chenchen Cui, **Zhongpeng Wang**, Wei Liu, Wenxu Liu and Liguo Wang, *University of Jinan, China*.

4:10 PM Mechanistic Insight in NO Trapping on Pd/Chabazite Systems for the Low-Temperature NOx Removal from Diesel Exhausts. Roberta Villamaina[1], Isabella Nova[1], Enrico Tronconi[1], **Maria Pia Ruggeri**[2], Loredana Mantarosie[3], Jillian Collier[2] and David Thompsett[2], *(1)Politecnico di Milano, Italy, (2)Johnson Matthey Technology Centre, United Kingdom, (3)Johnson Matthey, United Kingdom*.

4:30 PM Perovskite/Al_2O_3-Nanocomposites As New Low Temperature NO_x Storage Materials for Lean NO_x Traps. **Sabrina Ecker**[1,2], Juergen Dornseiffer[1], Hartmut Schlenz[1], Jonas Werner[3], Fynn-Sören Sauerwein[1], Stefan Baumann[1], Olivier Guillon[1] and Wilhelm Meulenberg[1,2], *(1)Forschungszentrum Juelich GmbH, Germany, (2)University Twente, Netherlands, (3)Rheinisch-Westfaelisch Technische Hochschule Aachen, Germany*.

4:50 PM Deactivation of Pd/Zeolite NO_x Adsorber during Extended FTP Cycles and Regeneration Methods. **Xinyi Wei** and Steve Steeley, *BASF, USA*.

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THURSDAY MORNING

Catalysis for Biomass Conversion 7

9:40 AM Catalytic Production of 1,4-Butanediol from Erythritol. **Yoshinao Nakagawa**, Tianmiao Wang, Masazumi Tamura and Keiichi Tomishige, *Tohoku University, Japan*.

10:00 AM Developments of Activated-Carbon Catalysts for Hydrolysis of Polysaccharides Derived from Seaweeds. **Ayumu Onda**, *Kochi University, Japan*.

10:20 AM Selective Conversion of Fructose to 5-Ethoxymethylfurfural over Nb Modified Heteropoly Tungstate Catalysts. P Krishna Kumari and **Lingaiah Nakka**, *CSIR-Indian Institute of Chemical Technology, India*.

10:40 AM Research of Au/ZnO Interface and Its Application in Selective Oxidation of Glycerol. **Guandong Wu**, Yufei He and Dianqing Li, *Beijing University of Chemical Technology, China*.

11:00 AM Steering the Crystal Structure of Supported Molybdenum Carbide and Its Influence on Stearic Acid Hydrodeoxygenation. Luana Souza Macedo[1], Ricardo Rodrigues de Oliveira Junior[2], Tomas Haasterecht, van[1], Victor Teixeira da Silva[2] and **J.H. (Harry) Bitter**[1], *(1)Wageningen University & Research, Netherlands, (2)Federal University of Rio de Janeiro, Brazil*.

11:20 AM *Ex-Situ* Catalytic Upgrading of Paper Sludge Pyrolysis Vapor to Bio-Based Chemicals and High-Quality Biofuels. **Songbo He**[1], Anton Bijl[2] and Gerrit Brem[3], *(1)University of Groningen, Netherlands, (2)Alucha Management B.V., Netherlands, (3)University of Twente, Netherlands*.

11:40 AM Driving Towards Cost-Competitive Biofuels through Catalytic Fast Pyrolysis By Rethinking Catalyst Selection and Reactor Configuration. **Michael Griffin**[1], Kristiina Iisa[1], Huamin Wang[2], Abhijit Dutta[1], Kellene Orton[1], Richard French[1], Daniel Santosa[2], Nolan Wilson[1], Earl Christensen[1], Kurt Van Allsburg[1], Frederick Baddour[1], Daniel Ruddy[1], Eric Tan[1], Hao Cai[3], Calvin Mukarakate[1] and Joshua Schaidle[1], *(1)National Renewable Energy Laboratory, USA, (2)Pacific Northwest National Laboratory, USA, (3)Argonne National Laboratory, USA*.

12:00 PM Tunable Mesoporous and Nanoparticulate Zirconia Catalysts for Biorefining. **Karen Wilson** and Adam Lee, *RMIT University, Australia*.

12:20 PM Surface Reactions during Aqueous Phase Reforming of Polyols and Sugars. Jungseob So[1], John Copeland[1], Bryan Hare[1], Tianjun Xie[2], Paul Meza-Morales[2], David S. Sholl[1], Rachel Getman[2] and **Carsten Sievers**[1], *(1)Georgia Institute of Technology, USA, (2)Clemson University, USA*.

THURSDAY AFTERNOON

Syngas 1/2

2:00 PM Dry Reforming of Methane on Ni/Al_2O_3 Catalyst with Additive Oxygen for a Carbon-Free Technique. **Puneet K. Chaudhary** and Goutam Deo, *Indian Institute of Technology Kanpur, India*.

2:20 PM Syngas Production By Actual Bioethanol Reforming over Monolith Reactors Washcoated with $Rhpt/CeO_2$-SiO_2: Managing Operational Variables to Improve Activity and Modify H_2/CO Ratio. Bernay Cifuentes[1,2], Nestor Sanchez[1], July Gomez[1], Felipe Bustamante[2] and **Martha Cobo**[1], *(1)Universidad de La Sabana, Colombia, (2)Universidad de Antioquia, Colombia*.

2:40 PM Tailored Redox Catalysts for Low-Temperature Partial Oxidation of Methane with Cyclic CO_2 Splitting. **Luke Neal**[1], Vasudev Pralhad Haribal[1], Yunfei Gao[1], Qiongqiong Jiang[1,2], Xijun Wang[1], Ryan Dudek[1] and Fanxing Li[1], *(1)North Carolina State University, USA, (2)Institute of Engineering Thermophysics - Chinese Academy of Sciences, China*.

3:00 PM Exceptionally Active and Stable Catalysts for CO_2 Reforming of Glycerol to Syngas. Selin Bac[1,2], Zafer Say[3], Yusuf Koçak[3], Pelinsu Bulutoglu[1], **Emrah Ozensoy**[3] and Ahmet Kerim Avci[1], *(1)Bogazici University, Turkey, (2)University of Southern California, USA, (3)Bilkent University, Turkey*.

3:50 PM ***KEYNOTE*** **Industrial and Scientific Perspectives on Methanol Synthesis Catalysts. Jens Sehested**, *Haldor Topsoe A/S, Denmark*.

4:30 PM Production of Synthesis Gas with Tunable H_2/CO Composition By High-Temperature Co-Electrolysis of CO_2 and H_2o on a Coke Resistant Ni- and Co- Doped $(La,Sr)FeO_3$ Perovskite Cathode. **Dhruba Jyoti Deka**, Seval Gunduz, Jaesung Kim, Anne Co and Umit S. Ozkan, *The Ohio State University, USA*.

4:50 PM Ni/CeO_2 Supported Fecral Gauze for Stable Cycling Methane Catalytic Partial Oxidation-Cpox. **Gianluca Pauletto**[1], Daria C. Boffito[1], Andreas Jentys[2], Johannes Lercher[3] and Gregory S. Patience[1], *(1)Polytechnique Montreal, Canada, (2)Technische Universität München, Germany, (3)Pacific Northwest National Laboratory, USA*.

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THURSDAY MORNING

Environmental Catalysis 5

9:40 AM Strategy to Promote Supported Pt Catalysts for Low Temperature Formaldehyde Oxidation: The Role of Na. Li Wang, **Hailin Zhao** and Yun Guo, *East China University of Science and Technology, China*.

10:00 AM Continuous Oxidation of Methane into Dimethyl Ether By N_2o over Cu-BEA: A Combined Experimental and Theoretical Study. **Ning Liu**[1], Yan Li[2], Chengna Dai[2], Ruinian Xu[1], Biaohua Chen[1], Bin Wu[1] and Gangqiang Yu[1], *(1)Beijing University of Technology, China, (2)Beijing University of Chemical Technology, China*.

10:20 AM VOCs Catalytic Oxidation over Mn-Based Catalyst: Involvement of Oxygen Species and the Oxygen Cycle Using *in Situ* Designed-TP Techniques Combined with Multipulse Isotopic. **Qu Zhenping**, Dong Cui and Qin Yuan, *Dalian University of Technology, China*.

10:40 AM Promotional Effect of CeO_2 on Ag/P25 for Low Temperature Soot Oxidation. **Kwan-Young Lee** and Min June Kim, *Korea University, Korea, Republic of (South)*.

11:00 AM An *in-Situ* Investigation to Understand the Effect of Catalyst Reduction on CO Oxidation at Low Temperatures. Sarayute Chansai[1], Adam Greer[1], Rebecca Taylor[1], Yi-Chi Wang[1], Matthew Lindley[1], Robbie Burch[2], Matthew Smith[1], Sarah Haigh[1] and **Christopher Hardacre**[1], *(1)The University of Manchester, United Kingdom, (2)Queen's University Belfast, United Kingdom*.

11:20 AM The Roles of Surface and Bulk Oxygen Vacancies in CeO_2 for Catalytic Oxidation: Effects of the Active Oxygen Species. **Ziang Su** and Junhua Li, *Tsinghua University, China*.

11:40 AM A Pd-Sn Catalyst for Stable Methane Combustion in Steam. **Chaoqun Zhou**, Hao Ma, Zhongyue Zhou, Wenhao Yuan and Fei Qi, *Shanghai Jiao Tong University, China*.

12:00 PM Ammonia Control – the Next Frontier in Automotive Emissions Catalysis. **Andrew (Bean) Getsoian**, Rachel Snow and Giovanni Cavataio, *Ford Motor Company, USA*.

12:20 PM Selective Catalytic Oxidation of Ammonia over $LaMAl_{11}O_{19}$ (M = Fe, Cu, Co and Mn) Hexaaluminates Catalysts in Claus Process. **Guoxia Jiang**[1,2] and Zhengping Hao[2], *(1)Chinese Academy of Sciences, China, (2)University of Chinese Academy of Sciences, China*.

THURSDAY AFTERNOON

Theory and Computation 2/3

2:00 PM Single Atom Catalysis: Hydroformylation and Tandem-Hydrosilylation. **Jonas Amsler**[1], Bidyut Sarma[2], Jonglack Kim[2], Claudia Weidenthaler[2], Giovanni Agostini[3], Norbert Pfaender[4], Raul Arenal[5,6], Gonzalo Prieto[2,7], Philipp Plessow[1] and Felix Studt[1], *(1)Karlsruhe Institute of Technology, Germany, (2)Max-Planck-Institut für Kohlenforschung, Germany, (3)ALBA Synchrotron Light Source, Spain, (4)Max-Planck-Institut für Chemische Energiekonversion, Germany, (5)Universidad de Zaragoza, Spain, (6)ARAID Foundation, Spain, (7)Instituto de Tecnología Química, Spain*.

2:20 PM Operando Modeling Solves the Puzzle of Methane Dehydroaromatization: Active Site and Reaction Mechanism Study. **Guanna Li**, Evgeny Pidko and Dapeng Sun, *Delft University of Technology, Netherlands*.

2:40 PM Density Functional Theory Investigation of Shape-Selectivity in Pd-Zeolite Catalyzed C-H Activation of Toluene. **Massimo Bocus**[1], Jannick Vercammen[2], Julianna Hajek[1], Sam Van Minnebruggen[2], Patrick Tomkins[2], Dirk De Vos[2] and Veronique Van Speybroeck[1], *(1)University of Ghent, Belgium, (2)KU Leuven, Belgium*.

3:00 PM Elucidating the Structural, Spectroscopic and Energetic Features of the MoS_3 Amorphous Phase By DFT Simulation. **Amit Sahu**[1,2], Stephan Steinmann[2] and Pascal Raybaud[1,2], *(1)IFP Energies nouvelles, France, (2)Univ Lyon, ENS de Lyon, CNRS UMR 5182, France*.

3:50 PM Reactivity of Shape-Controlled Crystals and Metadynamics Simulations Locate the Weak Spots of Alumina in Water Catalysts. Romain Réocreux[1], Etienne Girel[2], Paul Clabaut[3], Alain Tuel[4], Michèle Besson[5], Alexandra Chaumonnot[2], Amandine Cabiac[2], Philippe Sautet[6] and **Carine Michel**[3], *(1)University College, United Kingdom, (2)IFPEN, France, (3)Univ Lyon, Ens de Lyon, CNRS UMR 5182, Université Claude Bernard Lyon 1, France, (4)CNRS, Université de Lyon1, France, (5)CNRS / Université Claude Bernard Lyon1 / Université de LYON, France, (6)University of California, Los Angeles, USA*.

4:10 PM Modelling of MoO_x/SiO_2 Catalyst: Structure of Isolated Mo(VI) Oxide Species and Formation of Active Sites for Alkene Metathesis. **Jarosław Handzlik**, Kamil Kurleto and Maciej Gierada, *Cracow University of Technology, Poland*.

4:30 PM Jun Li talk. **Jun Li**, *Southern University of Science and Technology, China*.

4:50 PM Ab-Initio Microkinetic Modeling Study of Bio-Gas Reforming: Sustainable Process for Syngas Production. Tuhin Suvra Khan, Fatima Jalid, Md Imteyaz Alam and **M. Ali Haider**, *Indian Institute of Technology Delhi, India*.

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THURSDAY MORNING

Electrocatalysis and Photocatalysis Fundamentals 4

9:40 AM Unraveling Selectivity Descriptors for Electrochemical CO_2 Reduction. **Hongjie Peng**[1,2], Michael Tang[1,2], Xinyan Liu[1,2], Philomena Schlexer Lamoureux[1,2], Michal Bajdich[1] and Frank Abild-Pedersen[1], *(1)SLAC National Laboratory, USA, (2)Stanford University, USA*.

10:00 AM Defect-Rich, Highly Ordered Porous Phosphorus-Doped Cobalt Oxide for Overall Water Electrolysis. **Yuan (Helena) Wang** and Chuan Zhao, *The University of New South Wales, Australia*.

10:20 AM Cerium Modulated Structural Disorder and Electronic Transport in Co_3O_4 Nanosheets for Electrocatalytic Oxygen Evolution Reaction. **Lejing Li**, *Chinese University of Hong Kong, Hong Kong*.

10:40 AM pH Effects in Hydrogen Electrocatalysis: An Anderson-Newns Hamiltonian Approach to Understand Double Layer Effects. **Jon Wilson**[1], Yushan Yan[1], Dionisios G. Vlachos[1] and Stavros Caratzoulas[2], *(1)University of Delaware, USA, (2)Catalysis Center for Energy Innovation (CCEI), University of Delaware, USA*.

11:00 AM Computational Design of Hybrid Catalyst for Efficient Electrochemical Water Splitting.. **Ting Tan**[1], Genesis Quiles-Galarza[2] and Aleksandra Vojvodic[2], *(1)National Center for Nanoscience and Technology, China, (2)University of Pennsylvania, USA*.

11:20 AM Designing 3-Dimensional Active Site Environments in Metal-Organic Frameworks for Oxygen Electrochemistry. Ty Sours[1], Anjli Patel[2], Samira Siahrostami[3], Jens K. Nørskov[4] and **Ambarish Kulkarni**[1], *(1)University of California, Davis, USA, (2)Stanford University, USA, (3)University of Calgary, Canada, (4)Technical University of Denmark, Denmark*.

11:40 AM A General Strategy to Atomically Dispersed M–N/C Catalysts for Promoting Electrocatalytic Energy Conversion Reactions. **Sang Hoon Joo**, *Ulsan National Institute of Science and Technology (UNIST), Korea, Republic of (South)*.

12:00 PM Engineering Catalysis at Solid–Solid Interfaces Using Non-Precious Mixed Metal Oxides for Energy Storage. **Samji Samira**[1], Siddharth Deshpande[2], Charles A. Roberts[3], Ayad Nacy[1], Jeffrey Greeley[2] and Eranda Nikolla[1], *(1)Wayne State University, USA, (2)Purdue University, USA, (3)Toyota Research Institute - North America, USA*.

12:20 PM Dinuclear Heterogeneous Catalysts As a New Platform. **Dunwei Wang**, *Boston College, USA*.

THURSDAY AFTERNOON

Electrocatalysis and Photocatalysis Fundamentals 5/6

2:00 PM Theoretical Study on the Electrochemical Catalysis and Durability: The Applications of Artificial Neural Network Based on the First-Principles Database. **Seunghyo Noh**, Woomin Kyoung, Changho Jung and Chang Hwan Kim, *Hyundai Motor Company, Korea, Republic of (South)*.

2:20 PM Effects of Surface Roughness on the Electrochemical Reduction of CO_2 over Cu. Kun Jiang[1], Mohamed Ebaid[1], Yufeng Huang[2], Jason Cooper[1] and **Alexis T. Bell**[1,3], *(1)Lawrence Berkeley National Laboratory, USA, (2)California Institute of Technology, USA, (3)University of California, Berkeley, USA*.

2:40 PM Electrochemical Promotion of CO_2 Hydrogenation on Thin Porous Ruthenium Catalytic Films Deposited on YSZ in Single Pellet and Monolithic Reactors. **Christos Chatzilias**, Eftychia Martino, Dimitrios Grigoriou, Dimitrios Zagoraios, Alexandros Katsaounis and Constantinos Vayenas, *University of Patras, Greece*.

3:00 PM Electrocatalyst Design and Development for the Sustainable Production of H_2 and Carbon-Based Fuels and Chemicals. **Thomas F. Jaramillo**, *Stanford University, USA*.

3:50 PM Artificial Photosynthesis By Heterogeneous Photocatalysts-Photocatalytic Reduction of CO_2 By H_2o As an Electron Donor-. **Kentaro Teramura**, *Kyoto University, Japan*.

4:10 PM Metal-Free Core-Shell Structural Plasmonic Boron Phosphide@Carbon Nitride Photocatalysts for Overall Water Splitting. **Gongxuan Lu**, *Lanzhou Institute of Chemical Physics, CAS, China*.

4:30 PM Self-Supported Copper-Based Gas Diffusion Electrodes for Electrochemical CO_2 Reduction. **Jie Zhang**[1,2], Wen Luo[1,2] and Andreas Züttel[1,2], *(1)Ecole polytechnique fédérale de Lausanne (EPFL), Switzerland, (2)EMPA, Switzerland*.

4:50 PM Ionic Liquid Assisted CO_2 Reduction over Bismuth Catalyst. **Sahithi Gorthy**[1], Matthew Neurock[1] and Joel Rosenthal[2], *(1)University of Minnesota, USA, (2)University of Delaware, USA*.

17th ICC Technical Program - Thursday

Coronado AB

THURSDAY MORNING

Catalysis with Ordered Porous Materials 7

9:40 AM Probing Composition Distribution in Nanoalloy Catalysts with Correlative Electron Microscopy. Shikai Liu[1], Isla Gow[2], Thomas Davies[2], Alexandra Barnes[2], Meenakshisundaram Sankar[2], Xiaoxiao Gong[2], Michael Dixon[3], Graham J. Hutchings[2], Christopher J. Kiely[2,4] and **Qian He**[1], *(1)National University of Singapore, Singapore, (2)Cardiff University, United Kingdom, (3)Hitachi High-Technologies (Europe), United Kingdom, (4)Lehigh University, USA*.

10:00 AM Rational Design of the Cu-SAPO-42 Catalysts for NH_3-SCR Reaction. **Nana Yan**, Chao Ma, Peng Guo, Peng Tian and Zhongmin Liu, *Dalian Institute of Chemical Physics, China*.

10:20 AM Solvent Effects on Intermolecular Mpvo and Cycloaddition Reactions in Zeolites with Different Intrapore Polarity. **John Di Iorio** and Yuriy Roman, *Massachusetts Institute of Technology, USA*.

10:40 AM Ru Single-Atom at Pure Silica Zeolite As an Efficient Ammonia Synthesis Catalyst. **Jiang Jiuxing** and Jiangzhen Qiu, *Sun Yat-sen University, China*.

11:00 AM Ultrathin SAPO Molecular Sieves: Synthesis and Catalytic Applications. Xiangke Guo, Mengxia Xu, Minyi She, Xuefeng Guo and **Weiping Ding**, *Nanjing University, China*.

11:20 AM Micro/Macroporous-Zeolites: Preparation Pathways and the Impact of the Related Porosity on Their Catalytically Performance. Tobias Weißenberger[1], Albert Machoke[1], Bastian Reiprich[2], Martin Hartmann[1] and **Wilhelm Schwieger**[1], *(1)Friedrich-Alexander-University Erlangen-Nürnberg, Germany, (2)University Erlangen-Nuremberg, Germany*.

11:40 AM Ethylene to Propylene over SSZ-13 By Hydrogen Regeneration ~ Novel Technology for Utilizing Ethane and Bio-Ethanol ~. **Masahiro Hara** and Tohru Setoyama, *Mitsubishi Chemical Corporation, Japan*.

12:00 PM Mechanistic Study of Dehydration of Lactic Acid to Acrylic Acid over Modified Zeolites. **Lili Zhang**, De Sheng Theng, Luwei Chen and Armando Borgna, *Institute of Chemical and Engineering Sciences, A*STAR, Singapore*.

12:20 PM Magnetic Y Zeolites As Efficient Catalysts for Hydrolysis and Oxidation of Marine Biomass. **Iunia Podolean**[1], Jan Prech[2], Efstathia Ioannou[3], Vassilios Roussis[3], Victor Kuncser[4], Simona Coman[1], Valentin Valtchev[2,5] and Vasile Parvulescu[1], *(1)University of Bucharest, Romania, (2)Normandie Univ, ENSICAEN, France, (3)National and Kapodistrian University of Athens, Greece, (4)National Institute of Materials Physics, Romania, (5)Jilin University, China*.

THURSDAY AFTERNOON

H_2 generation 1/2

2:00 PM Toward More Rational Activity Volcanos Hydrogen and Oxygen Electrocatalysis. **Shengli Chen**, *Wuhan University, China*.

2:20 PM Integration of Thermochemical Water Splitting with CO_2 Direct Air Capture. **Casper Brady**[1], Mark E. Davis[2] and Bingjun Xu[1], *(1)University of Delaware, USA, (2)California Institute of Technology, USA*.

2:40 PM Fabrication of Photoelectrodes from Narrow Bandgap Semiconductors for Hydrogen Production. **Tuo Wang**, Mengxin Chen, Bin Liu and Jinlong Gong, *Tianjin University, China*.

3:00 PM Mixed Metal Antimonates As Efficient Electrocatalysts for Oxygen Evolution Reaction in Acidic Medium. **Sibimol Luke**[1], Alexandr Simonov[1], Aswani Yella[2] and Akshat Tanksale[1], *(1)Monash University, Australia, (2)Indian Institute of Technology Bombay, India*.

3:50 PM Superior Performance of Ag over Pt for Hydrogen Evolution Reaction in Water Electrolysis Under More Negative Potentials. **Jiaying Mo** and Edman Shik-chi Tsang, *University of Oxford, United Kingdom*.

4:10 PM Relationship between Photoconductivity and Photocatalytic Activity of Bismuth-Based Oxyhalide Photocatalysts. **Hajime Suzuki**[1], Hironobu Kunioku[1], Masanobu Higashi[2], Ryu Abe[1] and Akinori Saeki[3], *(1)Kyoto University, Japan, (2)Osaka City University, Japan, (3)Osaka University, Japan*.

4:30 PM Surface Polarity-Induced Spatial Charge Separation Enhancing Photocatalytic Overall Water Splitting for H_2 Production. **Zheng Li**[1], Rengui Li[2] and Can Li[1], *(1)Dalian Institute of Chemical Physics, China, (2)Dalian Institute of Chemical Physics, Chinese Academy of Sciences, China*.

4:50 PM Local Polarization Promoted Visible-Light-Driven Overall Water Splitting at Elevated Temperatures. **Yiyang Li**, Jianwei Zheng, Simson Wu, Christopher Foo and Shik-Chi Edman Tsang, *University of Oxford, United Kingdom*.

17th ICC Technical Program - Thursday

Coronado CD

THURSDAY MORNING

In Situ and Operando Analysis 2

9:40 AM Relating the Structural Dynamics of Indium Oxide-Based Catalysts with Activity for CO_2 Hydrogenation to Methanol By *Operando* X-Ray Absorption Spectroscopy and Diffraction. Athanasia Tsoukalou[1], **Paula Macarena Abdala**[1], Dragos Stoian[2], Alexey Fedorov[1] and Christoph Müller[1], *(1)ETH Zürich, Switzerland, (2)European Synchrotron Radiation Facility, France*.

10:00 AM Methanol Synthesis from CO_2: A Mechanistic Study By Operando XAS, XRD and Ssitka-FTIR Techniques. **Maxim Zabilskiy**[1], Vitaly L. Sushkevich[1], Dennis Palagin[1], Mark A. Newton[2] and Jeroen A. van Bokhoven[1,2], *(1)Paul Scherrer Institute, Switzerland, (2)ETH Zürich, Switzerland*.

10:20 AM Development of Simultaneous *Operando* Fluorescence X-Ray Absorption and Transmission Infrared Spectroscopy for Catalyst Characterization. **Adam Hoffman**[1], Griffin Canning[2] and Simon Bare[1], *(1)SLAC National Accelerator Laboratory, USA, (2)University of New Mexico, USA*.

10:40 AM Understanding Structure-Function Relationships Using Combined Spatially Resolved *Operando* Techniques. **Donato Decarolis**[1,2], Ellie Dann[2,3], Emma Gibson[4], Alexandre Goguet[5], C. Richard A. Catlow[6], Anna B. Kroner[7], Christopher Hardacre[8], Paul Collier[4] and Peter Wells[2,9], *(1)Cardiff University, United Kingdom, (2)UK Catalysis Hub, United Kingdom, (3)University College London, United Kingdom, (4)Johnson Matthey Technology Centre, United Kingdom, (5)Queen's University Belfast, United Kingdom, (6)Cardiff University and The UK Catalysis Hub at Harwell, Rutherford Appleton Laboratory, United Kingdom, (7)Diamond Light Source Ltd., United Kingdom, (8)The University of Manchester, United Kingdom, (9)University of Southampton, United Kingdom*.

11:00 AM Coking of Zeolite ZSM-5 during the Conversion of Methanol to Hydrocarbons Monitored By X-Ray Diffraction Tomography. **Stian Svelle**[1], David S Wragg[1], Marco di Michiel[2], Lars Fahl Lundegaard[3] and Pablo Beato[3], *(1)University of Oslo, Norway, (2)ESRF- The European Synchrotron, France, (3)Haldor Topsøe A/S, Denmark*.

11:20 AM *Operando* Synchrotron Study Under Industrial Conditions of a Fischer-Tropsch Catalyst's Deactivation over 300 h Tos. Marc-André Serrer, Marcel Loewert, Tiziana Carambia, **Erisa Saraçi**, Peter Pfeifer and Jan-Dierk Grunwaldt, *Karlsruhe Institute of Technology (KIT), Germany*.

11:40 AM Inhibition of Methane Oxidation By H_2o and NO Studied By Modulation-Excitation X-Ray Absorption Spectroscopy. **Alexey Boubnov**, Andreas Gremminger, Maria Casapu, Olaf Deutschmann and Jan-Dierk Grunwaldt, *Karlsruhe Institute of Technology (KIT), Germany*.

12:00 PM The Effects of Zr-Doping into Ceria for the Dry Reforming of Methane over Ni/$CeZrO_2$ Catalysts: *In-Situ* Studies with XRD, XAFS, AP-XPS. Feng Zhang[1], Petar Djinovic[2], Jose A. Rodriguez[3] and **Sanjaya Senanayake**[3], *(1)Stony Brook University, USA, (2)National Institute of Chemistry, Slovenia, (3)Brookhaven National Laboratory, USA*.

12:20 PM New Mechanistic Insights into Hydrogen-Involved Reactions from *in Situ* Neutron Scattering Studies. Jisue Moon[1], Felipe Polo-Garzon[1], James Kammert[1], Meijun Li[1], Yongqiang Cheng[2], Luke Daemen[2], Anibal Ramirez-Cuesta[2] and **Zili Wu**[1,2], *(1)Oak Ridge National laboratory, USA, (2)Oak Ridge National Laboratory, USA*.

THURSDAY AFTERNOON

C1 Chemistry 7/8

2:00 PM Tuning Reactivity of Fischer-Tropsch Synthesis By Regulating TiO_x Overlayer over Ru Nanocatalysts. **Yaru Zhang**[1,2], Xiaofeng Yang[1], Xiaoli Yang[1,2], Yanqiang Huang[1] and Tao Zhang[1], *(1)Dalian Institute of Chemical Physics, Chinese Academy of Sciences, China, (2)University of Chinese Academy of Sciences, China*.

2:20 PM Preferential Synthesis of Ethanol from Syngas Via Dimethyl Oxalate Hydrogenation on Fe_5C_2-Based Catalyst. **Yujun Zhao**, Xin Shang, Huijiang Huang and Jia He, *Tianjin University, China*.

2:40 PM Direct Synthesis of C_{2+} Oxygenates with High Selectivity from Syngas By Tandem Catalysis. **Jincan Kang**, Wei Zhou, Shun He, Kang Cheng, Qinghong Zhang and Ye Wang, *Xiamen University, China*.

3:00 PM Partial Pressure Dependence of the CO Hydrogenation Mechanism over Co-Based Catalysts with Varying Supports. **Motahare Athariboroujeny**[1], Andrew Raub[1] and Norbert Kruse[1,2], *(1)Washington State University, USA, (2)Institute for Integrated Catalysis, USA*.

3:50 PM Zinc Aluminate As a Novel Support Material for Cobalt-Based Fischer-Tropsch Catalysts to Reduce Irreversible Deactivation. **Chelsea Tucker** and Eric van Steen, *University of Cape Town, South Africa*.

4:10 PM Direct Partial Oxidation of Methane to Methanol: New Learnings in an Old Challenge. **Partha Nandi**[1] and Steven Suib[2], *(1)Corporate Research, ExxonMobil Research and Engineering, USA, (2)University of Connecticut, USA*.

4:30 PM Methane Pyrolysis with Electrophilic Liquid and Gas Catalysts. **Jiren Zeng**[1], Maryam Tarazkar[1], John Safipour[2], Horia Metiu[1] and Eric McFarland[2], *(1)University of California Santa Barbara, USA, (2)University of California, Santa Barbara, USA*.

4:50 PM The Direct Molecular Oxygen Partial Oxidation of CH_4 to Dimethyl Ether over a Pt/Y_2O_3 Catalyst Using an NO/NO_2 Oxygen Atom Shuttle. Vibin Vargheese[1], Kyoko Bando[2], Junichi Murakami[2], Tyrone Ghampson[1], Gwang-Nam Yun[1,3], Yasukazu Kobayashi[1], Atsushi Takagaki[4] and **Ted Oyama**[1,3,5], *(1)The University of Tokyo, Japan, (2)National Institute for Advanced Science and Technology (AIST), Japan, (3)Virginia Tech, USA, (4)Kyushu University, Japan, (5)Fuzhou University, China*.

17th ICC Technical Program - Friday

FRIDAY, June 19

Seaport ABC

FRIDAY MORNING
Catalysis for Chemical Synthesis 3/4

8:00 AM Synergistic of Co and P: Realizing Efficient Regioselective Hydroformylation over Rhodium Based Catalyst. **Baiyin Wei**[1,2], Xiaofang Liu[2], Kaimin Hua[2,3], Hui Wang[2] and Yuhan Sun[1,2], *(1)School of Physical Science and Technology, Shanghai Tech University, China, (2)Shanghai Advanced Research Institute, Chinese Academy of Sciences, China, (3)University of the Chinese Academy of Sciences, China*.

8:20 AM Unexpected Selectivity of Alumina for Propane Dehydrogenation Under H_2s Treatment and Co-Feed. **Lohit Sharma**, Srinivas Rangarajan and Jonas Baltrusaitis, *Lehigh University, USA*.

8:40 AM Discovery of Sulfide Catalysts for the Selective Vapor-Phase Methoxycarbonylation of Ethylene. **David G. Barton**[1], Beata Kilos-Reaume[1], Paulami Majumdar[1], Steven Corthals[2] and Gerolamo Budroni[2], *(1)Dow, USA, (2)Dow Benelux, Netherlands*.

9:00 AM Direct Synthesis Vinyl Chloride Monomer Via Ethylene Oxychlorination. **Hongfei Ma**[1], Guoyan Ma[2], Yanying Qi[1], Yalan Wang[1], Kumar Ranjan Rout[1], Terje Fuglerud[3] and De Chen[1], *(1)Norwegian University of Science and Technology, Norway, (2)Xi'an Shiyou University, China, (3)INOVYN, Norway*.

9:40 AM E-Series® Catalyst for Acetylene Hydrogenation with Stable Operation. **Steven Lim**, Joseph Bergmeister, Zongxuan Hong, Cori Demmelmaier-Chang, Kelly Pritchett and Steven Kenny, *Chevron Phillips Chemical Company, USA*.

10:00 AM Enhanced Catalytic Performance and Green Oil Resistance of $Ni_3ZnC_{0.7}$@C for Acetylene Semihydrogenation. **Yu Wang**, Xiaocheng Lan and Tiefeng Wang, *Tsinghua University, China*.

10:20 AM CuO – B Catalysts for the Selective Oxidation of Propylene to Acrolein, the Effective Return of a Classical Catalyst. **Minh Thang Le**, *Hanoi University of Science and Technology, Viet Nam*.

10:40 AM Mechanistic Insights into the Role of Surface Oxygen Species in the Oxidative Coupling of Methane. **Zeynep Aydin**, David Linke, Vita A. Kondratenko and Evgenii V. Kondratenko, *Leibniz-Institut für Katalyse e.V., Germany*.

11:00 AM New Insights into the Molecular Structure-Acidity Relationships of Sulfated ZrO_2 Catalysts. **Israel E. Wachs**, Jonas Baltrusaitis, George Xu Yan and Anqi Wang, *Lehigh University, USA*.

11:20 AM Chlorine Dynamics on Promoted Ag/α-Al_2O_3 Ethylene Epoxidation Catalysts. **Jacob Miller**[1], Aditya Bhan[1], James W. Harris[1], Cha-Jung Chen[1], Krishna Iyer[1], Joseph DeWilde[2] and Jeffrey Herron[2], *(1)University of Minnesota, Twin Cities, USA, (2)Dow Chemical, USA*.

11:40 AM Tuning of Lewis Acid Zeolites and Nanozeolites for the Epoxide Ring Opening with Alcohols. **Nicholas Brunelli**[1], Nitish Deshpande[1], Aamena Parulkar[1], Ambarish Kulkarni[2], Alexander Spanos[1], Medha Kasula[1] and Rutuja Joshi[1], *(1)The Ohio State University, USA, (2)University of California, Davis, USA*.

12:00 PM Improving the Regioselectivity of Epoxide Alcoholysis Using Diol Co-Catalysts for Polyol Applications. **Mihir N. Bhagat**[1], Charmaine K. Bennett[1], Arjun Raghuraman[2], Matthew Belowich[2], SonBinh Nguyen[1], Linda J. Broadbelt[1] and Justin M. Notestein[1], *(1)Northwestern University, USA, (2)The Dow Chemical Company, USA*.

12:20 PM Universal Promotion of Heterogeneous Olefin Metathesis By Controlling Dynamic Active Site Formation and Decay. **Terry Gani**[1], Jong Hun Kang[1], Daniel Consoli[1], Shiran Zhang[1], Ka Wing Chan[2], Christophe Copéret[2] and Yuriy Roman[1], *(1)Massachusetts Institute of Technology, USA, (2)ETH Zurich, Switzerland*.

17th ICC Technical Program - Friday

Seaport DE

Catalyst Deactivation 1/2

8:00 AM Generalized Schemes for Predicting Stability Metrics and Dynamic Restructuring Processes in Bimetallic Nanoparticles. **Tej Choksi**[1], Verena Streibel[1], Philomena Lamoureux[1] and Frank Abild-Pedersen[2], *(1)Stanford University, USA, (2)SLAC National Laboratory, USA*.

8:20 AM Predicting Macroscopic Statistical Features from Supported Metal Energetics Using General Power Law Theory of Ostwald Ripening Kinetics. **Sulei Hu** and Wei-Xue Li, *University of Science and Technology of China, China*.

8:40 AM ***KEYNOTE*** **Elucidating the Origin of Catalyst Deactivation with Operando Spectroscopy and Microscopy. Bert Weckhuysen**, *Utrecht University, Netherlands*.

9:40 AM Deactivation Mechanism of Three-Way Catalysts Analyzed By Chassis-Dynamometer Tests, Electron Microscopy, and in-Situ Spectroscopy. **Masato Machida**, *Kumamoto University, Japan*.

10:00 AM Carbide Formation of Cobalt Fischer-Tropsch Catalyst Followed By *Operando* X-Ray Absorption Spectroscopy and X-Ray Diffraction. **Simon R. Bare**[1], Alexey Boubnov[1], Adam Hoffman[1], Florian Meirer[2], Bert M. Weckhuysen[2] and Ilse van Ravenhorst[2], *(1)SLAC National Accelerator Laboratory, USA, (2)Utrecht University, Netherlands*.

10:20 AM New Strategies for Developing Sintering-Resistant PGM Catalysts. **Gongshin Qi**[1] and Wei Li[2], *(1)General Motors Global Research & Development, USA, (2)General Motors Global R&D, USA*.

10:40 AM Understanding Deactivation Processes in Undoped and Doped Mn-Na_2WO_4/SiO_2 catalyzed Oxidative Coupling of Methane. Naseem Hayek and **Oz M. Gazit**, *Israel Institute of Technology -Technion, Israel*.

11:00 AM Mechanistic Insights into Metal Catalyst Deactivation in Complex Reaction Environments. **Haseena K V** and M. Ali Haider, *Indian Institute of Technology Delhi, India*.

11:20 AM Coke Resistant Ni-Mo Nanocatalysts for Dry Reforming of Methane. **Youngdong Song**[1], Ercan Ozdemir[1,2], Sreerangappa Ramesh[1], Aldiar Adishev[1], Saravanan Subramanian[1], Aadesh Harale[3], Mohammed Albuali[3], Bandar Fadhel[1,3], Aqil Jamal[1,3], Dohyun Moon[4], Sun Hee Choi[4] and Cafer T. Yavuz[1], *(1)KAIST, Korea, Republic of (South), (2)Gebze Technical University, Turkey, (3)Saudi Aramco, Saudi Arabia, (4)Pohang Accelerator Laboratory, Korea, Republic of (South)*.

11:40 AM Stabilization of Catalytic Surfaces Using Bimetallic Core-Shell Structures with Different Surface Free Energies (SFE). **Weijian Diao**, Andrew Wong, John Meynard Tengco, John R. Regalbuto and John R. Monnier, *University of South Carolina, USA*.

12:00 PM Kinetic Model for the Methanol to Gasoline Synthesis Reaction. **Martin Soerensen**, *Haldor Topsoe, Denmark*.

12:20 PM Probing Mo_2c Deactivation during Hydrodeoxygenation of Biomass Pyrolysis Vapors and Acetic Acid: Correlating Acidic and Metallic Sites with Catalytic Activity. **Matthew M. Yung**, Qiyuan Wu, Susan Habas and Joshua Schaidle, *National Renewable Energy Laboratory, USA*.

17th ICC Technical Program - Friday

Seaport FGH

Environmental Catalysis 8/9

8:00 AM Operando FT-IR Analysis and Reactivity Study of Pd/FER and Pd/SSZ-13 Low Temperature NOx Adsorbers. Lidia Castoldi[1], Roberto Matarrese[1], Sara Morandi[2] and **Luca Lietti**[1], *(1)Politecnico di Milano, Italy, (2)University of Torino, Italy*.

8:20 AM Magnetic Retrievable $SnFe_2O_4$-Graphitic Carbon Nitride Photocatalyst for High Efficient CO_2 Reduction. **Chunli LIU** and Yuefa Jia, *Hankuk University of Foreign Studies, Korea, Republic of (South)*.

8:40 AM Visible Light Driven Antibiotic Degradation at Titanium-Based Perovskites: Microstructure Regulations and Mechanism Insights. **Reshalaiti Hailili**, Hua Sheng, Chuncheng Chen, Hongwei Ji and Jincai Zhao, *Institute of Chemistry, Chinese Academy of Sciences, China*.

9:00 AM Enhanced Solar-Light Activation of TiO_2-Laser Modified Nanocatalysts for Efficient Treatment of Industrial Waters. **Luisa D'Urso**, Marcello Condorelli, Davide Leotta, Giuseppe Grasso, Roberto Fiorenza, Salvatore Scirè and Giuseppe Compagnini, *University of Catania, Italy*.

9:40 AM Low Temperature Emissions Reduction with Zeolite-Based Adsorbers and Novel Pd/Pt Based Oxidation Catalysts. **Todd J. Toops**[1], Pranaw Kunal[1], Eleni A. Kyriakidou[2] and Chih Han Liu[2], *(1)Oak Ridge National Laboratory, USA, (2)University at Buffalo, USA*.

10:00 AM MOF Fabricated Microreactor for Continuous Water Purification Under Visible-Light. **Cong Li**, Ying-Ya Liu, Zhichao Sun, Zhiquan Yu, Anjie Wang and Yao Wang, *Dalian University of Technology, China*.

10:20 AM Catalytic Copolymerization of CO_2 and α,ω-Diols Using CeO_2 Catalyst and Nitrile Promoter. **Keiichi Tomishige**, Masazumi Tamura, Yoshinao Nakagawa, Yu Gu and Akira Nakayama, *Tohoku University, Japan*.

10:40 AM Rh-in-Mg-(Al)-NO_3 layered Double Hydroxide Derived Catalysts for CO_2 Hydrogenation to Methanol: Higher Atom-Economy and Selectivity. **Tuğçe Ayvalı**[1], Samuel Harradine[1], Jianwei Zheng[1], Yufei Zhao[2], William Vickery[1] and Shik-Chi Edman Tsang[1], *(1)University of Oxford, United Kingdom, (2)Beijing University of Chemical Technology, China*.

11:00 AM Nanostructured Zn Catalysts for Electrochemical Reduction of CO_2 to CO. **Wen Luo**[1] and Andreas Züttel[1,2], *(1)EMPA, Switzerland, (2)Ecole polytechnique fédérale de Lausanne (EPFL), Switzerland*.

11:20 AM Auto-Methanation over Structured Ni/CeO_2 Catalyst System: A Novel Transforming Route of CO_2 Proceeding at Room Temperature. **Fukuhara Choji**, Asuka Kamiyama, Nozomu Hirata, Hiroshi Akama and Ryo Watanabe, *Shizuoka University, Japan*.

11:40 AM Supported Ceria with Controlled Basicity As Highly Efficient Catalysts for Direct Synthesis of Diethyl Carbonate from CO_2 and Ethanol. **Shuang Li**, *Northwest University,PRC, China*.

12:00 PM Supported Ionic Liquid in Pillared Clays Used As Catalyst in Cycloaddition of CO_2 and Propylene Oxide. **Michèle de Souza**, Ismael Belmonte, Aline Aquino, Anderson Schwanke and Katia Bernardo, *Uiversidade Federal do Rio Grande do Sul, Brazil*.

12:20 PM Catalytic Hydrogenation of CO2 to MeOH. **Anisa Tariq**, *Cardiff Catalysis Institute, School of Chemistry, Cardiff University, United Kingdom*.

17th ICC Technical Program - Friday

Harbor ABC

H_2 generation 3/4

8:00 AM Enhancement of Formic Acid Dehydrogenation Selectivity of Pd(111) Single Crystal Model Catalyst Surface *Via* Bronsted Bases. **Bartu Karakurt**, Yusuf Koçak and Emrah Ozensoy, *Bilkent University, Turkey*.

8:20 AM Efficient Hydrogen Production from Formic Acid By Homogeneous Iridium Catalysts. **Yuichiro Himeda**, *National Institute of Advanced Industrial Science, Japan*.

8:40 AM Controlling Synthesis of Uniform Electron Deficient Pd Clusters for Superior Hydrogen Production from Formic Acid. **Wanyue Ye**[1], Yuzhen Ge[2] and Rongwen Lu[1], *(1)Dalian University of Technology, China, (2)Peking University, China*.

9:00 AM Hydrogen Production from Gas-Phase Formic Acid Decomposition: Modification of the Carbon Support Surface By Melamine for Creation of Efficient Pd/N-C Catalysts. **Dmitri Bulushev**[1], Fedor Golub[1], Sergey Beloshapkin[2] and Valentin Parmon[1], *(1)Boreskov Institute of Catalysis, SB RAS, Russian Federation, (2)University of Limerick, Ireland*.

9:40 AM ***KEYNOTE*** **Ni/CeO_2 As Catalyst for Biogas Reforming: The Effect of Calcination Temperature on Ni Crystallite Size and Carbon Formation.** Renata Fonseca[1], Raimundo Crisostomo Rabelo-Neto[1], Rita Colman[2], **Fábio Noronha**[1] and Lisiane Mattos[2], *(1)National Institute of Technology, Brazil, (2)Fluminense Federal University, Brazil*.

10:20 AM Fundamental Understanding of Aqueous Formic Acid Dehydrogenation over Pd/C Catalysts for Hydrogen Production. **Yongwoo Kim** and Do Heui Kim, *Seoul National University, Korea, Republic of (South)*.

10:40 AM CO_2 Hydrogenation to Methanol on Binary Metal Oxide Solid Solution Catalyst. **Jijie Wang**[1], Chizhou Tang[1], Zhe Han[1] and Can Li[2], *(1)Dalian Institute of Chemical Physics, Chinese Academy of Sciences, China, (2)Dalian Institute of Chemical Physics, China*.

11:00 AM The New Value Chain from CO_2 to Ethylene Glycol: Selective Hydrogenation of Dimethyl Oxalate Intermediate over Supported Mixed-Valence Copper Nanoparticles. Gianfranco Giorgianni[1], Salvatore Abate[2], Federica De Lluca[2], Siglinda Perathoner[2] and **Gabriele Centi**[3], *(1)University of Calabria, Italy, (2)University of Messina, Italy, (3)University of Messina and ERIC aisbl, Italy*.

11:20 AM Silica Supported Au-Ag Catalysts for Preferential Oxidation of Carbon Monoxide (CO-PROX) Under H2-Rich Atmosphere. **Jongkook Hwang**, Petra E. de Jongh and Baira Donoeva, *Utrecht University, Netherlands*.

11:40 AM Oxidative Multifuel Reforming Via Ni-Pt Supported on Potassium-Doped Alumina for Small Scale H_2 Production. **Prashant Gupta**[1], Srinivas Seethamraju[2] and Akshat Tanksale[1], *(1)Monash University, Australia, (2)Indian Institute of Technology Bombay, India*.

12:00 PM Tailoring Metal Active Sites and Support for Sour Water-Gas Shift Reaction. Christian Sousa, Ludmila Silva, Luis Terra, Ana Coutinho and **Fabio B. Passos**, *Universidade Federal Fluminense, Brazil*.

12:20 PM The Polymorphism of ZrO_2 and Its Role in Methanol Steam Reforming on Cu-Based Catalyst. **Kevin Ploner**[1], Lukas Schlicker[2], Aleksander Gurlo[2], Albert Gili[2], Andrew Doran[3], Nicolas Köwitsch[4], Marc Armbrüster[4], Bernhard Klötzer[1] and Simon Penner[1], *(1)University of Innsbruck, Austria, (2)Technical University Berlin, Germany, (3)Lawrence Berkeley National Laboratory, USA, (4)Chemnitz University of Technology, Germany*.

17th ICC Technical Program - Friday

Harbor DEF

Theory and Computation 4/5

8:00 AM Size-Controlled Pd Nanoparticles Supported on Cobalt Oxide for Enhanced Water Gas Shift Reaction. **Dongjae Shin**, Rui Huang, Seok Hyun Choung, Youngbi Kim and Jeong Woo Han, *Pohang University of Science and Technology (POSTECH), Korea, Republic of (South)*.

8:20 AM Using Graph Representation Learning to Correct DFT Calculated Enthalpy and Merge Thermochemical Datasets. **Himaghna Bhattacharjee**[1], Dionisios G. Vlachos[1] and Nikolaos Anesiadis[2], *(1)University of Delaware, USA, (2)University of Toronto, Canada*.

8:40 AM Hydride Transfer to Mitigate Coke Formation during Co-Processing of Bio-Oil with Vacuum Gas Oil. **Carrie Farberow**, Yeonjoon Kim, Seonah Kim, Anne Starace, Kellene Orton and Calvin Mukarakate, *National Renewable Energy Laboratory, USA*.

9:00 AM Microwave Heating of Packed Bed Reactor. **Fanglin Che**[1], Himanshu Goyal[2] and Dionisios G. Vlachos[3], *(1)University of Massachusetts Lowell, USA, (2)Indian Institute of Technology Madras, India, (3)University of Delaware, USA*.

9:40 AM General Screening of Surface Alloys for Catalysis. **Matthew Montemore**, Chukwudi Nwaokorie and Gbolade Kayode, *Tulane University, USA*.

10:00 AM Machine Learning for the Study of Complex Surface Chemistries. Wenqiang Yang[1], Kareem Abdelfatah[1], Asif Chowdhury[1], Gabriel Terejanu[2] and **Andreas Heyden**[1], *(1)University of South Carolina, USA, (2)University of North Carolina, Charlotte, USA*.

10:20 AM DFT and Micro-Kinetic Studies of Intermetallic Catalysts for Hydrogenation. **Michael Janik**[1], Robert Rioux[1], Haoran He[1], Randall Meyer[2] and Anish Dasgupta[1], *(1)Pennsylvania State University, USA, (2)ExxonMobil Research and Engineering, USA*.

10:40 AM Solvent Effects on Adsorption Energies Revealed By Calorimetric Adhesion Energies of Solvents to Pt(111) and Ni(111). **Charles T. Campbell** and John Rumptz, *University of Washington, USA*.

11:00 AM Molecular-Level Insights into How Liquid Water Influences Catalysis at Water/Heterogeneous Catalyst Interfaces. Xiaohong Zhang[1], Tianjun Xie[1], Paul Meza-Morales[1], Ali Estejab[1], Cameron Bodenschatz[1,2] and **Rachel Getman**[1], *(1)Clemson University, USA, (2)NASA Glenn Research Center, USA*.

11:20 AM The Effects of Co-Adsorbed Water on Acetic Acid Decomposition; DFT and Microkinetic Modeling Study.. **Líney Árnadóttir** and Kingsley Chuckwu, *Oregon State University, USA*.

11:40 AM Integrating Catalyst Stabilities and Dynamics into Screening Protocols. **Verena Streibel**[1,2], Tej Choksi[1,2], An-Chih Yang[2], Jonathan Snider[2], Alessandro Gallo[1], Thomas F. Jaramillo[1,2], Matteo Cargnello[2] and Frank Abild-Pedersen[1], *(1)SLAC National Accelerator Laboratory, USA, (2)Stanford University, USA*.

12:00 PM Pd Speciation and NO_x Storage in Pd/H-CHA. **Jeroen Van der Mynsbrugge**, Paul Kim, Martin Head-Gordon and Alexis T. Bell, *University of California, Berkeley, USA*.

12:20 PM Theoretical Studies of Carbon-Carbon Bond Formation Via Ketonization over Site-Isolated Zirconium Catalysts. **Lance A. Bettinson**[1,2], Martin Head-Gordon[2,3] and Alexis T. Bell[1,2], *(1)University of California - Berkeley, USA, (2)Lawrence Berkeley National Laboratory, USA, (3)University of California, Berkeley, USA*.

17th ICC Technical Program - Friday

Harbor GHI

Electrocatalysis and Photocatalysis Fundamentals 7/8

8:00 AM Dual Photocatalytic Roles of Light: Charge Separation at the Band Gap and Heat Via Localized Surface Plasmon Resonance to Convert $^{13}CO_2$ into ^{13}co over Silver- or Gold-Zirconium Oxide. Hongwei Zhang, Takaomi Itoi, Takehisa Konishi and **Yasuo Izumi**, *Chiba University, Japan*.

8:20 AM *P-N* Type Cu_2o/TiO_2 Heterojunctions for Efficient Light Harvesting and CO_2 Gas-Phase Photo-Reduction to Methanol and Acetic Acid. Daniele Giusi[1], Chiara Genovese[1], **Siglinda Perathoner**[1], Claudio Ampelli[1] and Gabriele Centi[2], *(1)University of Messina, Italy, (2)University of Messina and ERIC aisbl, Italy*.

8:40 AM Nanostructured Layered Double Hydroxide Based Photocatalysts for CO2 Reduction Under Irradiation Above 600 Nm. **Yufei Zhao**, *Beijing University of Chemical Technology, China*.

9:00 AM Graphitic Carbon Nitride-Based Photocatalysts for Efficient Solar-Driven CO_2 reduction. **Keyan Li**, *Dalian University of Technology, China*.

9:40 AM Unique Hole-Accepting Carbon-Dots Promoting Selective Carbon Dioxide Reduction 100% to Methanol By Pure Water. **Yiou Wang**[1] and Junwang Tang[2], *(1)Nano-Institute Munich Ludwig-Maximilians-Universität München, Germany, (2)University College Lodnon, United Kingdom*.

10:00 AM Spatial Imaging of Photogenerated Charges in Solar Fuel Production. **Fengtao Fan** and Can Li, *Dalian Institute of Chemical Physics, Chinese Academy of Sciences, China*.

10:20 AM Schottky Barrier Height Evaluation and Enhanced Photoelectron Generation in Au/TiO_2 Nanorod Arrays for Solar Energy Conversion. **Albin Pintar**, *National Institute of Chemistry, Slovenia*.

10:40 AM Constructing of Triple Sequential Junction for Efficient Separation of Photogenerated Charges in Photocatalysis. Xia Yang[1], Chun Li[1], **Jing Zhang**[1], Xuebing Chen[1], Rengui Li[2] and Can Li[2], *(1)Liaoning Shihua University, China, (2)Dalian Institute of Chemical Physics, Chinese Academy of Sciences, China*.

11:00 AM Investigation of Excited State Decay Kinetics of CeO_2-Based Semiconductors Using Ultrafast Transient Absorption Spectroscopy. Alizee Remy[1,2], **Muthu Kumaran Gnanamani**[2], David J Gosztola[3], Eduardo Santillan-Jimenez[2] and Doo Young Kim[2], *(1)University of DIJON, France, (2)University of Kentucky, USA, (3)Argonne National Laboratory, USA*.

11:20 AM The Electronic Structure Has a Key Role in the Photocatalytic Conversion of Alcohols with Titania Supported Transition Metal Sulfides. **Clément Maheu**[1], Christophe Geantet[2], Eric Puzenat[2], Luis Cardenas[2] and Pavel Afanasiev[2], *(1)UMR 5256, Université de Lyon, CNRS, France, (2)University of Lyon / CNRS, France*.

11:40 AM XAFS/Eels Analyses of Nitrogen Doped into TiO_2 Photocatalysts. **Tomoko Yoshida**[1], Akiyo Ozawa[1], Shinya Yagi[2], Muneaki Yamamoto[1] and Tetsuo Tanabe[1], *(1)Osaka City University, Japan, (2)Nagoya University, Japan*.

12:00 PM Localized Orbital Excitation Drives Bond Formation in Plasmonic Catalysis. Tong Mou[1], Jhon Quiroz[2], Pedro Camargo[2] and **Bin Wang**[1], *(1)University of Oklahoma, USA, (2)University of Helsinki, Finland*.

12:20 PM Size-Controllable Synthesis of Ctf Nanoparticles for Increased Visible Light Photoredox Catalysis Activity. **Niklas Huber** and Kai Zhang, *Max Planck Institute for Polymer Research, Germany*.

17th ICC Technical Program - Friday

Coronado AB

Syngas 3/4

8:00 AM Synthesis of Syngas from Methane Dry Reforming on Metal-Oxide Catalysts: Toward Catalyst Design from First Principles. **Ping Liu**, *Brookhaven National Laboratory, USA*.

8:20 AM Vapor-Fed Devices for CO Evolution and Potential Downstream Uses. **Sarah Lamaison**[1,2], David Wakerley[1], Daniel Lee[1], Chris Hahn[1,3] and Thomas F. Jaramillo[1], *(1)Stanford University, USA, (2)Collège de France, France, (3)SLAC National Accelerator Laboratory, USA*.

8:40 AM Visualizing By Environmental Scanning Electron Microscopy the Surface Dynamics of Nickel during the Catalytic Production of Synthesis Gas. Luis Sandoval, Milivoj Plodinec, Adnan Hammud, Robert Schlögl and **Thomas Lunkenbein**, *Fritz Haber Institute of the Max Planck Society, Germany*.

9:00 AM The Effect of CO_2 Concentration and ZnO_x Promotion on Cu/C-Catalyzed Methanol Synthesis. **Remco Dalebout**, Krijn P. de Jong and Petra E. de Jongh, *Utrecht University, Netherlands*.

9:40 AM Using Atomic Layer Deposition to Understand Support Effects on Co_2c Formation in ZnO-Modified Co Catalysts during Syngas Reaction. **Sindhu Nathan**[1], Arun Asundi[1], Adam Hoffman[2], Joseph Singh[1], Alexey Boubnov[2], Simon Bare[2] and Stacey Bent[1], *(1)Stanford University, USA, (2)SLAC National Accelerator Laboratory, USA*.

10:00 AM Crystal Phase Sensitivity of Cobalt Based Fischer – Tropsch Synthesis Structural, Kinetic and Mechanistic Insight. **Nikolaos Tsakoumis**[1], Eleni Patanou[1], Rune Myrstad[2], Erling Rytter[1] and Edd A. Blekkan[1], *(1)Norwegian University of Science and Technology, Norway, (2)SINTEF Industry, Norway*.

10:20 AM Carbon-Efficient Conversion of Synthesis Gas to Linear α-Olefins By a Highly Active χ-Iron-Carbide Catalyst. **Peng Wang**[1,2], Wei Chen[2], Fuguo Jiang[1], Juan Dong[3], A. Iulian Dugulan[4], Robin Broos[2], Jiachun Chai[2], Ivo Filot[2], Zhuowu Men[1] and Emiel J. M. Hensen[2], *(1)National Institute of Clean-and-Low-Carbon Energy, China, (2)Eindhoven University of Technology, Netherlands, (3)Shenhua Science and Technology Research Institute, China, (4)Fundamental Aspects of Materials and Energy Group, Delft University of Technology, Netherlands*.

10:40 AM Space-Confined-Self-Regulation Mechanism from Capsule Catalyst to Realize an Ethanol Direct Synthesis Strategy. **Guohui Yang**[1,2], Peng Lu[1,3], Yoshiharu Yoneyama[1] and Noritatsu Tsubaki[1], *(1)University of Toyama, Japan, (2)Institute of Coal Chemistry, Chinese Academy of Sciences, China, (3)Zhejiang University of Science and Technology, China*.

11:00 AM The Role of Rh Nanoalloy Formation in Oxygenate Synthesis from CO Hydrogenation. **Phil Preikschas**[1], Milivoj Plodinec[2], Julia Bauer[1], Matthias Keck[3], Sebastian Praetz[1], Raoul Naumann d'Alnoncourt[1], Ralph Kraehnert[1], Frank Rosowski[1,4] and Matthias Driess[1], *(1)Technische Universität Berlin, Germany, (2)Fritz Haber Institute of the Max Planck Society, Germany, (3)Humboldt-Universität Berlin, Germany, (4)BASF SE, Germany*.

11:20 AM Modeling Fischer-Tropsch Kinetics for Reactor Design. Ljubiša Gavrilović[1], Anders Runningen[1], Erik Andreas Jørgensen[1], Umesh Pandey[1], Koteswara Rao Putta[1], Kumar Ranjan Rout[2], Erling Rytter[1], Magne Hillestad[1] and **Edd A. Blekkan**[1], *(1)Norwegian University of Science and Technology, Norway, (2)SINTEF, Norway*.

11:40 AM Nanocatalysts from Ionic Liquid Precursors for the Direct Conversion of CO_2 to Hydrocarbons. Zara Shiels[1], John Harrison[2], **Peter Nockemann**[1] and Nancy Artioli[1], *(1)Queen's University Belfast, United Kingdom, (2)Renewable Engine, United Kingdom*.

12:00 PM Catalysis inside Hollow Nanostructured Materials: The Balanced Adsorption-Diffusion Effect. **Yue Wang**, Dawei Yao, Antai Li and Xinbin Ma, *Tianjin University, China*.

12:20 PM Zeolite Supported Nickel Catalyst As a Highly Selective and Efficient Catalyst for Oxidation of Methane to Syngas. **Shuhei Yasuda**[1], Ryota Osuga[1], Yusuke Kunitake[1], Atsushi Fukuoka[2], Hirokazu Kobayashi[2] and Toshiyuki Yokoi[3], *(1)Tokyo Institute of Technology, Japan, (2)Hokkaido University, Japan, (3)4259 Nagatsuta, Midori-ku, Japan*.

17th ICC Technical Program - Friday

Coronado CD

In Situ and Operando Analysis 5/6

8:00 AM Identification and Role of Interstitial PdN_x Structures in the Selective Oxidation of Ammonia. **Peter Wells**, *University of Southampton, United Kingdom*.

8:20 AM Operando Spectroscopy Beyond Heterogeneous Catalysis. **Casey O'Brien** and Justin Easa, *University of Notre Dame, USA*.

8:40 AM *Operando* Monitoring of the Atmosphere-Dependent Stability of Pt/Al_2O_3 single-Atom Catalyst and Its Related CO Oxidation Performance. Caroline Dessal[1], Alexis Sangnier[2], Thomas Len[1], Franck Morfin[1], Pavel Afanasiev[1], Jean-Luc Rousset[1], Mimoun Aouine[1], Céline Chizallet[2] and **Laurent Piccolo**[1], *(1)University of Lyon, France, (2)IFP Energies nouvelles, France*.

9:00 AM Infography of Heterogeneous Catalysts By 3D Spectro-Imaging and Unsupervised Learning. **Mizuki Tada**[1], Hirosuke Matsui[1], Tomoya Uruga[2] and Hieu Chi Dam[3], *(1)Nagoya University, Japan, (2)Japan Synchrotron Radiation Research Institute, Japan, (3)Japan Advanced Instutite of Science and Technology, Japan*.

9:40 AM Liquid-Phase Transmission Electron Microscopy of Zeolites in Water. **Lars I. van der Wal**, Krijn P. de Jong and Jovana Zečević, *Utrecht University, Netherlands*.

10:00 AM Heterogeneous Gas Phase Hydrogenation Investigation Via MRI. Kirill V. Kovtunov[1], Alexandra Svyatova[1], **Ekaterina Pokochueva**[1], Dudari Burueva[1], Elizaveta Kononenko[1], Alexey Fedorov[2] and Igor V. Koptyug[3], *(1)International Tomography Center, Russian Federation, (2)ETH Zürich, Switzerland, (3)International Tomography Center, SB RAS, Russian Federation*.

10:20 AM Contribution of NMR and Raman Imaging to Monitor the Impregnation Step of Heterogeneous Catalysts. Leonor Catita, **Olivier Delpoux**, Anne-Agathe Quoineaud and Christophe Pichon, *IFP Energies nouvelles, France*.

10:40 AM *In Situ* Solid-State NMR Combined with Sensitivity Enhanced Techniques for Mechanism Study in Methanol Conversion Reaction. **Shutao Xu**, Yingxu Wei and Zhongmin Liu, *Dalian Institute of Chemical Physics, Chinese Academy of Sciences, China*.

11:00 AM Correlative in-Situ Gas and Heating TEM: Case Study of Oscillatory Behavior in Pd Catalyzing Methane Oxidation Processes. **Dan Zhou**, Ronald Spruit, Merijn Pen, Hugo Perez Garza and Qiang Xu, *DENSsolutions B.V., Netherlands*.

11:20 AM Dynamic Role of Iron on Mechanism and Stability in Ni-Fe Catalysts for the Methanation of CO_2 Under Transient Reaction Conditions. Marc-André Serrer, Abhijeet Gaur, Jelena Jelic and **Jan-Dierk Grunwaldt**, *Karlsruhe Institute of Technology (KIT), Germany*.

11:40 AM In-Situ Hydrogenation of Single Bimetallic Nanoparticles By Light Coupled Environmental Transmission Electron Microscopy. **Briley Bourgeois** and Jennifer Dionne, *Stanford University, USA*.

12:00 PM *Operando* MAS NMR Investigation of Liquid Phase Hydrogenation Mechanisms Involving Supported Metal Catalysts. **Susannah L. Scott**[1], Ali Chamas[2] and Long Qi[3], *(1)University of California Santa Barbara, USA, (2)Department of Chemistry and Biochemistry, USA, (3)Ames Laboratory, USA*.

12:20 PM Dehydrogenation of Propane – Insights into an Industrially Relevant Reaction By *Operando* Transmission Electron Microscopy. **Hannah Nerl**, Milivoj Plodinec, Robert Schlögl and Thomas Lunkenbein, *Fritz Haber Institute of the Max Planck Society, Germany*.

Poster Program

17th ICC
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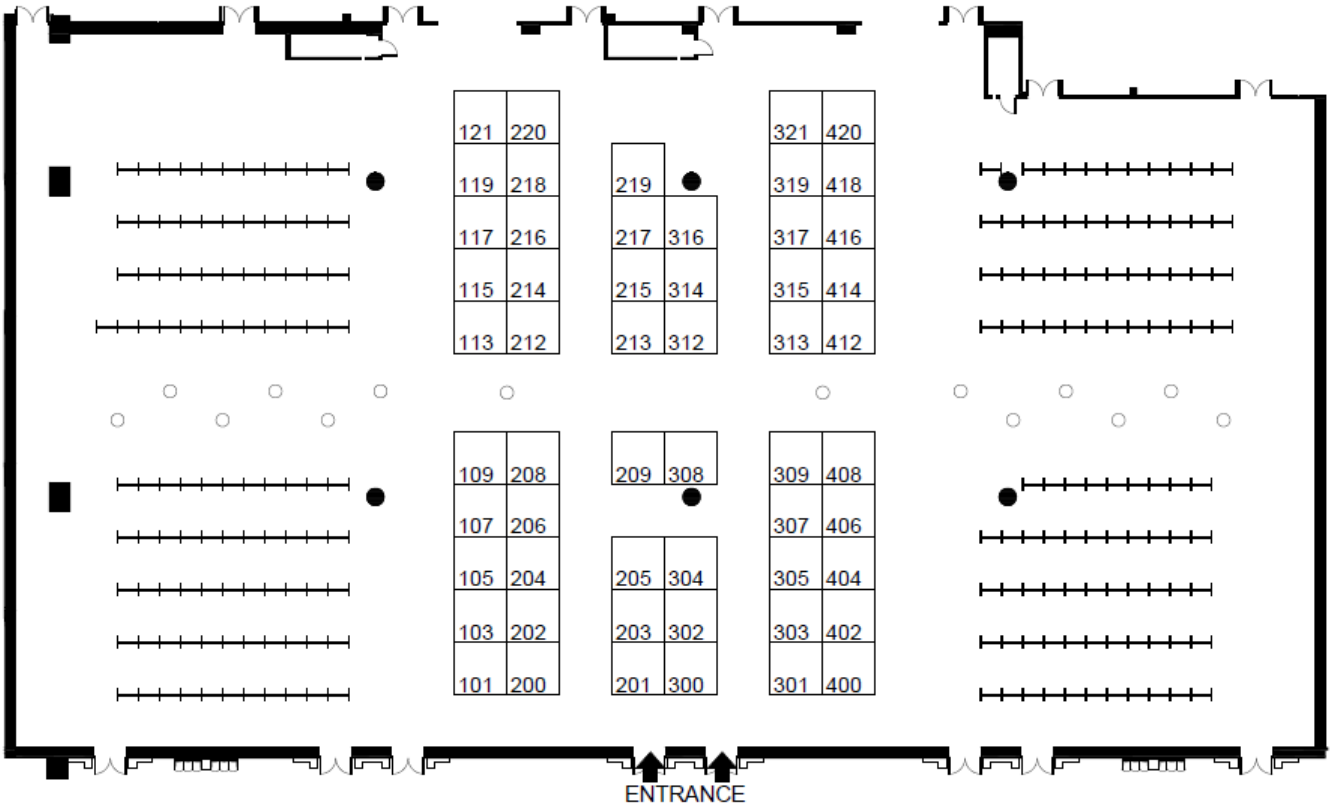
17th ICC Poster Program

Poster sessions are co-located with exhibitor booths and breaks

POSTER HALL FLOOR PLAN



Grand Hall A-D, Grand Hyatt San Diego

17th ICC Poster Program - Monday

MONDAY POSTER SESSIONS

Phase Transfer Ceria-Supported Nanocatalyst for Nitrile Hydration reaction
Nikitra Gupta, Sivaprasad Mekhala, Vipul Patil and Raja Thirumalaiswamy, *CSIR-National Chemical Laboratory, India*.

Catalytic Pyrolysis of Waste Plastics into Liquid Hydrocarbon Using Mesoporous Kaolin Clay
Mohammed Mahmudur Rahman[1], Md-Mizanul Hassan[2], Muhammad Omar Faruk[2], Ayesha Sharmin[2] and Md. Abdul Matin[2], *(1)Jagannath University, Bangladesh, (2)Bangladesh University of Engineering and Technology, Bangladesh*.

V-Ce/Ti-Pilc Catalysts: Structure Characterization and Selective Catalytic Reduction of NO with Ammonia
Qing Ye, *College of Environmental and Energy Engineering, Beijing University of Technology, China*.

Advanced Surface Characterisation and Rational Design of Zeolite Catalysts Using Synchrotron X-Ray Powder Diffraction
Benedict Tsz-woon Lo[1], Edman Shik-chi Tsang[2] and Chiu Chung Tang[3], *(1)The Hong Kong Polytechnic University, China, (2)Oxford University, United Kingdom, (3)Diamond Light Source, United Kingdom*.

Study on Mesoporous-Supported Catalysts for Simultaneous CO_2 and Steam Reforming of Biogas
Camilla Galletti, Fabio Alessandro Deorsola, Samir Bensaid and Nunzio Russo, *Politecnico di Torino, Italy*.

Designing Efficient Cobalt Catalysts to Tailor Distribution of Fischer-Tropsch Synthesis Products
Xingang Li, *Tianjin University, China*.

Characterization of Carbon Formation during Catalytic Decomposition of Ethanol over Bimetallic Ni-Co Catalysts
Anand Kumar and Anchu Ashok, *Qatar University, Qatar*.

Direct Acid-Catalyzed Mechanocatalytic Pretreatment of Woody Biomass
Henna Lempiäinen[1], Katja Lappalainen[2] and Ulla Lassi[2], *(1)University of Jyväskylä, Kokkola University Consortium Chydenius, Finland, (2)University of Oulu, Finland*.

Simple Synthesis of High Si/Al Ratio Nanometric Y Zeolite without Template
Carlos Mendoza, *Universidad de antioquia, Colombia*.

Effect of Pretreatment of Support and Catalyst on Formation of Pt Species in Pt/CeO_2 Catalysts
Tatiana Bugrova, Tamara Kharlamova, Anna Savel'eva, Mikhail Salaev and Grigory Mamontov, *Tomsk State University, Russian Federation*.

Diffusion Resistance Evaluation on Middle Distillates Hydrotreating
Leandro Novaes, Argimiro Secchi, Vera Salim and Neuman de Resende, *Universidade Federal do Rio de Janeiro (UFRJ), Brazil*.

Continuous Gas Phase Analysis of the Product Stream of Dimethylfuran Conversion over Zeolites.
Christopher Sauer and Per-Anders Carlsson, *Chalmers University of Technology, Sweden*.

Carbon Monoxide Activation on Cobalt-Based Catalysts for Fischer-Tropsch Synthesis from First-Principles Theory
Wei-Xue Li, *University of Science and Technology of China, China*.

Ensemble Effect of Surface Alloy Electro-Catalysts
Yuxuan Wang and Chao Wang, *Johns Hopkins University, USA*.

The Effect of Support on Nickel Phosphide Catalysts for One-Pot Conversion of Jatropha Oil into High Grade Hydrocarbons
DAN LI[1] and Changwei Hu[2], *(1)Sichuan University, China, (2)College of Chemistry, Sichuan University, China*.

Rational Catalyst Design Via State-to-State Microkinetics
Bin Shan, Jiaqiang Yang, Xiao Liu and Rong Chen, *Huazhong University of Science and Technology, China*.

17th ICC Poster Program - Monday

Selectively Creating Oxygen Vacancies on Pr-Ce/SiO_2 Catalysts for Efficient Transformation of Furfural–Acetone Adduct into a Functionalized 1,3–Diene
Yanlong Qi[1], Shijun Liu[1,2], Long Cui[1] and Chenxi Bai[1,2], *(1)Changchun Institute of Applied Chemistry, CAS, China, (2)University of Science and Technology of China, China*.

A Highly Active and Selective Catalyst for Low Temperature H_2-SCR: Boron-Doped Graphene Nanosheets-Supported Pt
Maocong Hu and Xianqin Wang, *New Jersey Institute of Technology, USA*.

Highly Efficient Hydrogen Peroxide Direct Synthesis over a Hierarchical TS-1 Encapsulated Subnano Pd/PdO Hybrid
Jinghui Lyu[1,2], Yizhi Xiang[3], Qunfeng Zhang[1], Chunshan Lu[1], Feng Feng[1], Yining Huang[2] and Xiaonian Li[1], *(1)Institute of Industrial Catalysis, Zhejiang University of Technology, China, (2)Western University, Canada, (3)Mississippi State University, USA*.

Application of Unit Cell Volume As an Analytical Tool to Monitor the Deactivation of ZSM-5 in the FCC Equilibrium Catalyst
Udayshankar Singh[1], Juergen Knoell[2], Mike Ziebarth[1] and Wu-Cheng Cheng[1], *(1)W.R. Grace & Co.-Conn., USA, (2)Grace GmbH & Co KG, Germany*.

Nickel Catalyst with Atomically-Thin Meshed Cobalt Coating for Improved Durability in Dry Reforming of Methane
Kun Cao, Miao Gong, Jianfeng Yang, Bin Shan and Rong Chen, *Huazhong University of Science and Technology, China*.

A Chemical Approach for Ultrafast Synthesis of SAPO-n Molecular Sieves
Zhenhua Yao[1], Xuguang Liu[2] and Maocong Hu[1], *(1)Jianghan University, China, (2)Qingdao University of Science and Technology, China*.

Structured Ni/NaA Zeolite Coated SiC Foam Catalysts for Catalytic CO_2 Methanation
Rongxin Zhang, Huanhao Chen, Yibing Mu and Xiaolei Fan, *The University of Manchester, United Kingdom*.

Catalytic Conversion of Biorenewable Sugar Feedstocks into Market Chemicals
Alfred Hagemeyer[1], Valery Sokolovskii[1], Hans-Joerg Woelk[1] and Vince Murphy[2], *(1)Alvacat, USA, (2)Rennovia, Inc., USA*.

Ag–K/$CeO_2ZrO_2Al_2O_3$ Catalysts for the Simultaneous Removal of Soot and NOx from Diesel Passenger Exhausts
Anna Cooper[1] and Stuart Taylor[2], *(1)Cardiff University, United Kingdom, (2)Cardiff Catalysis Institute, Cardiff University, United Kingdom*.

Atomic Pd on g-C_3N_4 for High Performance Hydrogen Evolution Under Visible Light Irradiation
Zhichun Si, *Tsinghua University, China*.

Thermal and Catalytic Depolymerization of Waste Polystyrene
Pavel Lestinsky and Amer Inayat, *VSB-Technical University of Ostrava, Czech Republic*.

Influence of Catalyst Structure and Reaction Conditions on Performance of OCM Catalysts
Robert Schucker and Katarzyna Derrickson, *SABIC Corporate Research, USA*.

Efficient Microwave-Assisted Annealing of Reduced Graphene Oxides in an up-Flow Reactor
Konosuke Minakami[1], Isao Ogino[1], Shinichiroh Iwamura[1], Hironobu Ono[2] and Shin Mukai[1], *(1)Hokkaido University, Japan, (2)Nippon Shokubai, Japan*.

Performance Evaluation of the Catalytic Decomposition of Sulfuric Acid in Iodine-Sulfur Process: A Kinetic Modeling and Simulation Study
Shailesh Pathak[1], Sreedevi Upadhyayula[1], Damaraju Parvatalu[2] and Sanjeev S. Katti[2], *(1)Indian Institute of Technology Delhi, India, (2)ONGC ENERGY CENTRE, India*.

Selective Methylation of Toluene to Xylene Using CO_2 and H_2 over Integrated Dual-Functional Catalysts
Jiachang Zuo, Xinping Duan, Chaoli Tong, Yafei Xie and Youzhu Yuan, *Xiamen University, China*.

Grafting Nanometer Metal/Oxide Interface Towards Enhanced Low-Temperature Acetylene Hydrogenation
Baohui Lou[1], Shihui Zou[1], Yihan Zhu[2], Bo Yang[3], Yonghua Du[4] and Jie Fan[1], *(1)Zhejiang University, China, (2)Zhejiang University of Technology, China, (3)ShanghaiTech University, China, (4)Brookhaven National Laboratory Upton NY, USA*.

An *in-Situ* DRIFT Study for CO_2 Methanation over Ni-Fe Alloy Catalysts
Huong Lan Huynh and Zhixin Yu, *University of Stavanger, Norway*.

17th ICC Poster Program - Monday

Relationship between HER Activity and Lattice Parameter in $Mo_{1-X}V_xB_2$
Eunsoo Lee and Boniface Fokwa, *University of California, Riverside, USA*.

Immobilization of Phosphortungstic Acid on Mixed-Ligand-Directed UiO-66 and Its Highly Catalytic Performance for Esterification
Yan Lulu and Fan Yu, *China University of Petroleum, Beijing, China*.

Determining the Electronic and Atomic Structure of Ceria Supported Pt Single Atoms
Yuanyuan Li[1], Matthew Kottwitz[2], Ralph Nuzzo[2,3] and Anatoly Frenkel[1,4], *(1)Stony Brook University, USA, (2)University of Illinois, USA, (3)KTH Royal Institute of Technology, Sweden, (4)Brookhaven National Laboratory, USA*.

Elucidation of Governing Factors of Supports for Ammonia Synthesis Rate in the Electric Field
Sasuga Hayashi[1], Kota Murakami[1], Atsushi Ishikawa[2], Takuma Higo[1], Shuhei Ogo[1], Jeong Gil Seo[3], Hideaki Tsuneki[1], Hiromi Nakai[1] and Yasushi Sekine[1], *(1)Waseda University, Japan, (2)NIMS, Japan, (3)Myongji University, Korea, Republic of (South)*.

Ambient-Temperature Oxidative Coupling of Methane over $CePO_4$ Catalyst in an Electric Field
Shuhei Ogo[1,2], Keigo Kamata[2,3], Ayaka Sato[1], Yuna Takeno[1], Takuma Higo[1], Tomokazu Yamamoto[4], Syo Matsumura[4], Michikazu Hara[3] and Yasushi Sekine[1], *(1)Waseda University, Japan, (2)Japan Science and Technology Agency, Japan, (3)Tokyo Institute of Technology, Japan, (4)Kyushu University, Japan*.

Electron-Rich Gold Nanoparticles Promotes Oxygen Activation in Gas-Phase Alcohol Oxidation
Shihui Zou and Jie Fan, *Zhejiang University, China*.

Hybrid Perovskite Materials for Catalysis Applications
Hamidreza Arandiyan, *University of Sydney, Australia*.

Designing MoS_2 Nanocatalysts with High Exposure of Active Sites for Catalytic Hydrogenation of Polycyclic Aromatic Hydrocarbons
Donge Wang, Huaijun Ma, Zhendong Pan, Wei Qu, Jianqiang Han and Zhijian Tian, *Dalian Institute of Chemical Physics, Chinese Academy of Sciences, China*.

The Electrochemical Characteristics of Bimetallic Fe-Cu N_4 Macrocyclic Catalysts
Tzu Hsuan Chiang and Shih-Che Sun, *National United University, Taiwan*.

Production of High Octane Fuel from CO_2
Abhay Dokania, Adrian Ramirez, Anastasiya Bavykina, Ahmed Alkhalaf, Idoia Hita, Cailing Chen, Nimer Wehbe, Yu Han, Pedro Castaño and Jorge Gascon, *King Abdullah University of Science & Technology, Saudi Arabia*.

Oxidative Dehydrogenation of Ethylbenzene Using Cobalt Ferrite
Moisés da Costa Borges[1], Felipe Fernades Barbosa[1], Sibele B. C. Pergher[1], Nadine Essayem[2] and Tiago Pinheiro Braga[1], *(1)Federal University of Rio Grande do Norte, Brazil, (2)Institut de Recherches sur La Catalyse et L'environemment, France*.

Oxidative Dehydrogenation of Ethane Using Pt-Zn Intermetallics
Zhuoran Gan[1], Zheng Lu[2], Sungsik Lee[2], Christopher L. Marshall[2] and Yu Lei[1], *(1)The University of Alabama in Huntsville, USA, (2)Argonne National Laboratory, USA*.

Cu Assisted Pt/CeO_2 Catalyst with Enhanced CO Oxidation Performance Via Redox-Coupled Atomic Layer Deposition
Xiao Liu, Bin Shan and Rong Chen, *Huazhong University of Science and Technology, China*.

Oligomerization of Acetylene to Produce Unsaturated C_4 Products Under Pressurized Conditions
Özgül Agbaba Sener, Wolfgang Schmidt and Ferdi Schüth, *Max-Planck-Institut für Kohlenforschung, Germany*.

Active Oxygen Centers on La_2O_3 in Oxidative Coupling of Methane
Evgeny Vovk, Xiaohong Zhou, Zebang Liu, Cairu Guan, Yong Yang and Yaoqi Pang, *ShanghaiTech University, China*.

In-Situ Characterizations of Nanostructured Ceria Catalysts for Non-Reductive Conversion of Carbon Dioxide
Wen-Yueh Yu, *National Taiwan University, Taiwan*.

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Hollow Hierarchical Single-Crystal ZSM-5 Zeolites with Encapsulated Metal Nanocatalysts for Selective Catalysis
Kelvin Kwok[1,2], Daniel S.W. Ong[1], Luwei Chen[3] and Hua Chun Zeng[2], *(1)Institute of Chemical and Engineering Sciences, A*STAR, Singapore, (2)National University of Singapore, Singapore, (3)Institute of Chemical and Engineering Sciences, A*Star, Singapore*.

Uncertainty Quantification in Surrogate Models for Catalyst Properties
Kevin Tran, Willie Neiswanger, Junwoong Yoon, Eric Xing and Zachary Ulissi, *Carnegie Mellon University, USA*.

Hydrodeoxygenation of Lignin-Derived Compounds Mixture over Pd Catalysts
Camila Teles[1], Priscillq Magalhaes De-Souza[1], Raimundo Crisostomo Rabelo-Neto[2], Gary Jacobs[3], Daniel Resasco[4] and Fábio Noronha[2], *(1)Federal University of Rio de Janeiro, Brazil, (2)National Institute of Technology, Brazil, (3)UTSA, USA, (4)University of Oklahoma, USA*.

Effect of Coking on Remarkable Enhancement of Catalytic Activity in Direct Dehydrogenation of Isobutane on Ni/Al_2O_3
Shigeru Sugiyama[1], Kenta Oribe[1], Masahiro Katoh[1], Naohiro Shimoda[1], Yuki Kato[2] and Wataru Ninomiya[2], *(1)Tokushima University, Japan, (2)Mitsubishi Chemical Corporation, Japan*.

Formation of Highly Active Superoxide Sites on CuO Nanoclusters Encapsulated in SAPO-34 for Catalytic Selective Ammonia Oxidation
Fei Han[1], Mengqi Yuan[1], Shinya Mine[2], Han Sun[1], Haijun Chen[1], Takashi Toyao[3], Masaya Matsuoka[2], Kake Zhu[4], Jinlong Zhang[5], Weichao Wang[1] and Tao Xue[6], *(1)Nankai University, China, (2)Osaka Prefecture University, Japan, (3)Hokkaido University, Japan, (4)East China University of Science and Technology, China, (5)East China University of Science & Technology, China, (6)Tianjin University, China*.

A Surface Co-Functionalized Silica Supported Palladium Catalyst for Selective Hydrogenation of NBR with Enhanced Catalytic Activity and Recycling Performance
Pei Yuan, *Fuzhou University, China*.

Ceria-Iron Oxide Catalysts for the Total Oxidation of Propane and Naphthalene VOCs: Influence of Cerium Precursor and Molar Ratios
Kieran Aggett and Stuart Taylor, *Cardiff Catalysis Institute, Cardiff University, United Kingdom*.

Deoxygenation of Fatty Acid to α-Olefins Using Supported Bimetallic Co-Pt Catalysts
Ploynisa Phichitsurathaworn[1], Kittisak Choojun[1,2] and Tawan Sooknoi[1,2], *(1)King Mongkut's Institute of Technology Ladkrabang, Thailand, (2)King Mongkut's Institute of Technology Ladkrabang, Thailand*.

Aerobic Oxidation of Organosulfides By a $BaRuO_3$ Nanoperovskite
Keigo Kamata[1,2], Satoshi Muratsugu[1,3], Yu Kumagai[1,2], Fumiyasu Oba[2], Michikazu Hara[2] and Yuuki Kato[2], *(1)Japan Science and Technology Agency, Japan, (2)Tokyo Institute of Technology, Japan, (3)Nagoya University, Japan*.

Spatial Charge Separation for Scalable Solar Hydrogen Production with Particulate Photocatalysts
Rengui Li, Yue Zhao and Can Li, *Dalian Institute of Chemical Physics, Chinese Academy of Sciences, China*.

Electronic and Morphological Tuning of Sn_3O_4 Toward Efficient Electrochemical Conversion of CO_2 to Carbonaceous Products
Zhou Chen, Tingting Fan and Xiaodong Yi, *Xiamen university, China*.

Selective Hydrogenolysis of Glycerol to 1,3-Propanediol over Rhenium Oxide-Modified Iridium Particles Coating Rutile Titania Support
Lujie Liu, Masazumi Tamura, Yoshinao Nakagawa and Keiichi Tomishige, *Tohoku University, Japan*.

Synthesis of Diesel Range Fuel Precursor from Furfuryl Alcohol over Fibrous γ-Al_2O_3 Sphere Supported Nb_2O_5 Catalysts.
Mahlet Nigus Gebresillase and Jeong Gil Seo, *Myongji University, Korea, Republic of (South)*.

Effects of Zeolitic Material's Framework Modification By Thermal Treatment
Siyabonga Ndlela and Holger Friedrich, *University of KwaZulu-Natal, South Africa*.

Development of Supported Ru Catalysts for Reductive Amination
Yusuke Kita, Dian Deng, Keigo Kamata and Michikazu Hara, *Tokyo Institute of Technology, Japan*.

In-Situ Synthesis of Single-Atom Ir By Utilizing Metal-Organic Frameworks: An Acid-Resistant Catalyst for Hydrogenation of Levulinic Acid to γ-Valerolactone
Wenxiu Cao[1], Lu Lin[1], Haifeng Qi[1,2], Qian He[3], Zhijie Wu[4], Aiqin Wang[5], Wenhao Luo[1] and Tao Zhang[5], *(1)Dalian Institute of Chemical Physics, China, (2)University of Chinese Academy of Sciences, China, (3)Cardiff Catalysis Institute, United Kingdom, (4)China University of Petroleum, China, (5)Dalian Institute of Chemical Physics, CAS, China*.

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Morphology and Promoter Location of Supported Sulfide Catalyst: IR Spectroscopy and HR STEM HAADF Microscopy Studies
Laetitia Oliviero and Françoise Maugé, *Laboratoire Catalyse et Spectrochimie, Normandie University, Ensicaen, Unicaen, CNRS, France*.

CO_2 Hydrogenation into Liquid Hydrocarbons on a K-Fe/Al_2O_3 catalyst.
Carlotta Panzone[1,2], Régis Philippe[2], Alban Chappaz[1], Laurent Vanoye[2], Clémence Nikitine[2], Pascal Fongarland[2] and Alain Bengaouer[1], *(1)CEA Grenoble, France, (2)CPE LYON 1, France*.

Mn_yTiO_x Composite Oxide Catalysts for Catalytic Combustion of Vinyl Chloride Emission
Liu Hao and Yanglong Guo, *East China University of Science and Technology, China*.

Silica-on-Carbon Coating Methodology for the Production of Sintering Resistant, Acidic, Hydrothermally Stable or Bifunctional Catalysts Active in Biomass Valorization Reactions.
Tommy Haynes[1], Vincent Dubois[2] and Sophie Hermans[1], *(1)UCLouvain, Belgium, (2)LABIRIS, Belgium*.

Microwave-Assisted Hydrothermal Fabrication $BiVO_4$ for Photocatalytic Water Splitting
SuHua Chen, YongSiang Jaing and Hsinyu Lin, *National Dong Hwa University, Taiwan*.

Production of Acrolein from a Mixture of Methanol and Ethanol: Influence of the Acid/Base Properties of Spinel Catalysts
Vincent Folliard[1], Georgeta Postole[1], Livia Marra[2], Jean-Luc Dubois[3] and Aline Auroux[1], *(1)University Lyon 1, France, (2)Baikowski, France, (3)Arkema, France*.

Alkylation of Benzene with Ethanol to Ethylbenzene over Hierarchically Nanospherical ZSM-5 Nanosheets Derived from Aluminosilicate Nanobeads
Kachaporn Saenluang[1], Thidarat Imyen[2], Wannaruedee Wannapakdee[2], Duangkamon Suttipat[2], Pannida Dugkhuntod[2], Marisa Ketkeaw[2], Anawat Thivasasith[2] and Chularat Wattanakit[2], *(1)Vidyasirimedhi Institute of Science and Technology, Thailand, (2)Vidyasirimedhi Institute of Science and Technology (VISTEC), Thailand*.

Molecular Compositional Characterisation of Atmospheric Residues and Catalytic Cracking By Positive Mode Appi-FT-ICR-Mass Spectrometry
Gnana Pragasam Singaravel and Abdulmajeed AlKatheeri, *Abu Dhabi National Oil Company (ADNOC), United Arab Emirates*.

A Novel Nickel Foam Fixed-Bed Catalyst for Hydrogenation Reactions
Wynter Osminski, *Evonik Corporation, USA*.

Visualizing Diffusivities in Zeolite MFI Using Single Molecule Tracking
Donglong Fu, Jacob J.E.Maris, Marijn E. Siemons, Desiree Salas Pastene, Nikolaos Nikolopoulos, Florian Meirer, Lukas Kapitein and Bert M. Weckhuysen, *Utrecht University, Netherlands*.

Methane Chemisorption on Single Atom Catalysts
Victor Fung[1], Qiang Wan[1,2] and De-en Jiang[1], *(1)University of California, Riverside, USA, (2)Fuzhou University, China*.

Assessing Syngas Sulfur Levels in a Commercial-Scale Landfill Gas-Sourced Microchannel Fischer-Tropsch Synthesis Plant
Heinz Robota, Lucas Schrader, Christy Burton, Kenneth Cowen and Soumitra Deshmukh, *Velocys, USA*.

Novel Catalysts Based on Apatite-Type Lanthanum Silicate for Toluene Combustion
Kenji Matsuo, Naoyoshi Nunotani and Nobuhito Imanaka, *Osaka University, Japan*.

Highly Dispersed Copper Embedded in N-Doped Carbon Modified SBA-15 for Efficiently Hydrogenation of Levulinic Acid into γ-Valerolactone
Fujun Lan, Qingxin Guan, Fang Zou, Yu Zhao, Yuping Liu, Xiaoqi Yan and Wei Li, *Nankai University, China*.

Enhanced Propane Dehydrogenation to Propylene over Zinc-Promoted Chromium Catalysts
Jie Liu[1,2], Yong Liu[1], Wenliang Zhu[1] and Zhongmin Liu[1], *(1)Dalian Institute of Chemical Physics, Chinese Academy of Sciences, China, (2)University of Chinese Academy of Sciences, China*.

Metrics for Assessing Deactivation in Catalysis: Site-Loss Rate, Selectivity, and Yield with Active Sites As Consumable Species
Brandon Foley, Blake Johnson and Aditya Bhan, *University of Minnesota, Twin Cities, USA*.

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Renewable Piperylene Production from Biomass-Derived 2-Methyltetrahydrofuran
Gaurav Kumar[1], Dongxia Liu[2], Dandan Xu[3], Limin Ren[4], Michael Tsapatsis[4] and Paul J. Dauenhauer[5], *(1)University of Minnesota, USA, (2)University of Maryland - College Park, USA, (3)University of Massachusetts Amherst, USA, (4)University of Minnesota - Twin Cities, USA, (5)The University of Minnesota - Twin Cities, USA*.

Catalysis-in-a-Box: A Microflow Catalytic Reactor Integrated within a Gas Chromatograph for Automated Kinetic Measurements
Gaurav Kumar[1], Hannah Bossert[1], Dan McDonald[1], Michael Tsapatsis[2], Omar Abdelrahman[3] and Paul J. Dauenhauer[4], *(1)University of Minnesota, USA, (2)University of Minnesota - Twin Cities, USA, (3)University of Massachusetts Amherst, USA, (4)The University of Minnesota - Twin Cities, USA*.

Influence of Mesopore and Acidity of Y Zeolite on the Catalytic Activity of CuY Catalyst for Oxidative Carbonylation of Methanol
Guoqiang Zhang[1] and Zhong Li[2], *(1)taiyuan university of technology, China, (2)Taiyuan University of Technology, China*.

Alumina-Supported Bimetallic Palladium-Cobalt Single Atoms: A Highly Efficient Catalyst for Benzene Combustion
Zhiquan Hou, Yuxi Liu, Jiguang Deng and Hongxing Dai, *College of Environmental and Energy Engineering/Beijing University of Technology, China*.

Electron-Donating Effect of CeO_{2-X} to Fe-Based Catalysts and the Performance on the Hydrodesulfurization of Dibenzothiophene
Xuandong Liu[1,2,3], Lei Li[1,2,3], Xinyue Zhang[1,2,3] and Baojian Shen[1,2,3], *(1)State Key Laboratory of Heavy Oil Processing, China, (2)China University of Petroleum, China, (3)The Key Laboratory of Catalysis of CNPC, China*.

MoP As a High Performance Catalyst for Hydrodeoxygenation of Furfural to 2-Methylfuran
Yunlong Yao, Zhiquan Yu, Yao Wang, Zhichao Sun, Ying-Ya Liu and Anjie Wang, *Dalian University of Technology, China*.

Surface Physical Chemistry and Catalytic Properties of Cu_2O and Cu Nanocrystals
Zhenhua Zhang[1] and Weixin Huang[2], *(1)Zhejiang Normal University, China, (2)University of Science and Technology of China, China*.

Boosting Photocatalytic CO_2 Reduction over Modified Metal-Organic Frameworks
Yanghe Fu, Rui Ma, Fumin Zhang, Deli Chen, Qiang Xiao and Weidong Zhu, *Zhejiang Normal University, China*.

Active Cobalt Species for Methylation of Benzene with Methane on MFI Zeolite
Hitoshi Matsubara, Kana Yamamoto, Keigo Kanehara, Koshiro Nakamura, Etsushi Tsuji, Satoshi Suganuma and Naonobu Katada, *Tottori University, Japan*.

Intermetallic Compound $PtMn_y$-Derived Pt-MnO_x Supported on Mesoporous CeO_2: High-Performance Catalysts for Toluene Combustion
Hongxing Dai and Xiaohang Fu, *College of Environmental and Energy Engineering/Beijing University of Technology, China*.

Topological Effect on the Formation of Cu Active Sites over Pentasil Zeolites for NO Direct Decomposition and NH_3-SCR
Yusuke Ohata[1], Takeshi Ohnishi[1], Takahiko Moteki[1,2] and Masaru Ogura[1,2], *(1)The University of Tokyo, Japan, (2)Kyoto University, Japan*.

CO Hydrogenation to Ethanol over Iron-Promoted Rh-Based Catalyst: The Effect of Support
Zilong Shao[1], Xiaofang Liu[1], Shunan Zhang[1], Hui Wang[1] and Yuhan Sun[1,2], *(1)Shanghai Advanced Research Institute, Chinese Academy of Sciences, China, (2)School of Physical Science and Technology, Shanghai Tech University, China*.

Reversible Low-Temperature Redox and Oxidation Performances of Cr and Rh-Incorporated Ceria Catalysts
Satoru Ikemoto[1], Satoshi Muratsugu[1,2], Hirosuke Matsui[1], Takanori Koitaya[2,3], Ayako Hashimoto[2,4] and Mizuki Tada[1], *(1)Nagoya University, Japan, (2)Japan Science and Technology Agency, Japan, (3)Institute for Molecular Science, Japan, (4)National Institute for Materials Science, Japan*.

Identification of n-Heptane Reforming Catalytic Descriptors By Means of High Throughput Kinetic Studies
Olivier Said-aizpuru[1,2], Florent Allain[1], Aurelie Dandeu[1], Fabrice Diehl[1], Franck Morfin[2], David Farrusseng[2] and Jean-Francois Joly[1], *(1)IFP Energies nouvelles, France, (2)CNRS, Université de Lyon1, France*.

One-Pot Transformation of Biomass-Derived Furfural to γ-Valerolactone over Zeolite Catalysts
Hongwei Zhang, Stephan Jaenicke and Gaik-Khuan Chuah, *National University of Singapore, Singapore*.

Electron Paramagnetic Resonance (EPR) Study of Cu-CHA Catalysts for Selective Catalytic Reduction (SCR) Reaction
Yiyun Liu[1], Feng Ryan Wang[1] and Loredana Mantarosie[2], *(1)University College London, United Kingdom, (2)Johnson Matthey, United Kingdom*.

Super-Acid Driven Multifunctional Conversion of CO_2 to Light Olefins
Adrian Ramirez, Abhishek Dutta Chowdury, Samy Oud-Chikh and Jorge Gascon, *King Abdullah University of Science & Technology, Saudi Arabia*.

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Influence of the Impregnation Order on the Performance of Co-Sn/Al_2O_3 Catalysts for Nitrile Synthesis
Kasper Rode Nielsen[1,2], Phillip Malcho[2], Anker D. Jensen[1] and Jakob M. Christensen[1], *(1)Technical University of Denmark, Denmark, (2)Haldor Topsoe A/S, Denmark*.

Oxidative Dehydrogenation of *N*-Octane Using Faujasite Type Catalysts Prepared By Different Methods
Mduduzi Cele[1], Holger Friedrich[2] and Siyabonga Ndlela[2], *(1)North-West University, South Africa, (2)University of KwaZulu-Natal, South Africa*.

Deselectivation in Fischer-Tropsch Catalysis: Towards an Identification of the Mechanisms
Paul Hazemann[1], Yves Schuurman[2], Dominique Decottignies[1], Sylvie Maury[1] and Séverine Humbert[1], *(1)IFPEn, France, (2)CNRS, Université de Lyon 1, France*.

Dry Reforming of Methane at Low Temperatures over Ni Deposited on Different Nanoshaped CeO_2
Kristijan Lorber, Janvit Terzan and Petar Djinovic, *National Institute of Chemistry, Slovenia*.

Mechanisms and Kinetics of Alkenes Isomerization and Cracking in Zeolites Quantified By Constrained *Ab Initio* Molecular Dynamics
Jérôme Rey[1], Charles Bignaud[2], Axel Gomez[2], Pascal Raybaud[2], Céline Chizallet[2] and Tomas Bucko[3,4], *(1)Univ Lyon, Ens de Lyon, CNRS UMR 5182, Université Claude Bernard Lyon 1, France, (2)IFP Energies nouvelles, France, (3)Comenius University in Bratislava, Slovakia, (4)Slovak Academy of Sciences, Slovakia*.

Mechanism of the H_2 Effect on NH_3-Selective Catalytic Reduction over Ag/Al_2O_3: Kinetic and DRIFTS Studies
Guangyan Xu, Yunbo Yu and Hong He, *Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences, China*.

Effects of Iron Doped Cobalt Oxide Nanoparticles on Water Adsorption and Splitting
Anthony Curto and Aleksandra Vojvodic, *University of Pennsylvania, USA*.

The Effect of Template on the Catalytic Properties of Ordered Porous Carbon-Supported Copper for Phenol Removal in Wastewaters
Maria do Carmo Rangel, *Universidade Federal do Rio Grande do Sul, Brazil*.

Stability and Activity of IrO_2-Based Homogeneous, Heterogeneous, and Hybrid Water Oxidation Catalysts
Genesis Quiles-Galarza, Ting Tan and Aleksandra Vojvodic, *University of Pennsylvania, USA*.

Development of Novel Hydrogen Production Processes for the Transition from Fossil to Renewable Energy Sources
Amoolya Lalsare[1], I-Wen Wang[1], Lili Li[2], Robert A. Dagle[3] and Jianli Hu[1], *(1)West Virginia University, USA, (2)Zhoukou Normal University, China, (3)Pacific Northwest National Laboratory, USA*.

Amine and Nitrile Synthesis By Catalytic CO Hydrogenation in the Presence of Ammonia
Hafsa Karroum[1], Viacheslav Iablokov[1], Vincent Dubois[2] and Norbert Kruse[1], *(1)Washington State University, USA, (2)LABIRIS, Belgium*.

Fischer-Tropsch Synthesis: Synergistic Effect of Pt and Cd Promoters on Olefin Formation over a 15%Co/Al_2O_3 Catalyst
Wenping Ma, Gary Jacobs, Jennifer L. S. Klettlinger and Burtron Davis, *University of Kentucky, USA*.

Tracing Operation and Analyzing Fingerprints - Using Smart Tools and Digitalization to Better Understand Industrial Scale Catalytic Processes
Radu Craciun, *BASF Corporation, USA*.

Preparation and Enhanced Electrocatalytic Oxygen Reduction Performances on Size-Controlled Pt Nanoparticle Catalysts Functionalized with Polypyrrole Polymers and Lanthanide Hydroxides
Satoshi Muratsugu, Kentaro Ichihashi and Mizuki Tada, *Nagoya University, Japan*.

Evaluation of Resistance to Poisoning and Its Effect on Selectivity and Activity: An IR Operando Study of Bifunctional Sulfide Catalysts
Bruno M. Santos[1], José Luiz Zotin[1], Françoise Maugé[2], Laetitia Oliviero[2], Weitao Zhao[2] and Mônica A. P. da Silva[3], *(1)PETROBRAS, Brazil, (2)Laboratoire Catalyse et Spectrochimie, Normandie University, Ensicaen, Unicaen, CNRS, France, (3)Universidade Federal do Rio de Janeiro (UFRJ), Brazil*.

Electrolyte Engineering Elucidates Reactant Switching for Proton-Coupled Reactions during the Aqueous Cathodic Process
Tatsuya Shinagawa and Kazuhiro Takanabe, *The University of Tokyo, Japan*.

Controlling Particle Size of Photo-Deposition Method Via Manipulating Surface Structures of Semiconductor
Kun Qian, *University of Science and Technology of China, China*.

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Assessing the Acid-Base Properties of Atomically Dispersed Metal Hydroxyl Species on Silica
Branden Leonhardt[1] and Alexis T. Bell[2], *(1)University of California Berkeley, USA, (2)University of California, Berkeley, USA*.

Effective Strategy for High-Yield Furan Dicarboxylate Production for Biobased Polyester Applications
Minjune Kim[1], Yaqiong Su[2], Takayuki Aoshima[3], Atsushi Fukuoka[1], Emiel J. M. Hensen[2] and Kiyotaka Nakajima[1,4], *(1)Hokkaido University, Japan, (2)Eindhoven University of Technology, Netherlands, (3)Mitsubishi Chemical Corporation, Japan, (4)Japan Science & Technology Agency, Japan*.

Mechanochemically-Assisted Synthesis of Ga-Substituted MFI-Type Zeolite Catalysts for Methane Conversion
Motohiro Yoshida[1], Fumiya Muto[1], Mami Horie[1], Yusuke Kunitake[2], Toshiki Nishitoba[2], Mizuho Yabushita[1], Sachiko Maki[1], Kiyoshi Kanie[1], Toshiyuki Yokoi[2] and Atsushi Muramatsu[1,3], *(1)Tohoku University, Japan, (2)Tokyo Institute of Technology, Japan, (3)JST CREST, Japan*.

Influence of TiO_2 Crystallinity and Morphology on Visible-Light Photocatalytic Activity of TiO_2-Bi_2O_3/$(BiO)_2CO_3$ Composite in AOPs
Gregor Žerjav and Albin Pintar, *National Institute of Chemistry, Slovenia*.

Waste-Derived Zeolite ZSM-5 As a Methanol-to-Olefins Catalyst
Nikolaos Nikolopoulos, Robin Geitenbeek and Bert Weckhuysen, *Utrecht University, Netherlands*.

Catalytic Performance of Rh/$FeNbO_4$ for Purifying Automotive Exhaust Gases
Saburo Hosokawa, Kenya Onishi, Hiroyuki Asakura, Kentaro Teramura and Tsunehiro Tanaka, *Kyoto University, Japan*.

Design of Pd/Graphene-Au Nanorod Nanocomposite Catalyst for Surface Plasmon Resonance-Enhanced Reaction
Takeharu Yoshii[1], Kenjirou Tamaki[1], Yasutaka Kuwahara[1,2,3], Kohsuke Mori[1,3] and Hiromi Yamashita[1,3], *(1)Osaka University, Japan, (2)JST, PRESTO, Japan, (3)Kyoto University, Japan*.

Cracking of Glucose for Production of Glycolaldehyde and Other Oxygenates and Their Secondary Decomposition
Christian B. Schandel[1], Martin Høj[1], Christian M. Osmundsen[2], Esben Taarning[2] and Anker D. Jensen[1], *(1)Technical University of Denmark, Denmark, (2)Haldor Topsøe A/S, Denmark*.

Ni-Fe Interaction Induces a Deviation of Scaling Relationship for Oxygen Evolution Electrocatalysis in Ni-Fe (Oxy)Hydroxide
Chizhong Wang and Junhua Li, *Tsinghua University, China*.

Lanthanide-Doped Layered Double Hydroxides, Prepared Via the Aqueous Miscible Organic Solvent Method, As Catalysts for Low-Temperature Methanol Steam Reforming.
William Vickery, Tuğçe Ayvalı and Shik-Chi Edman Tsang, *University of Oxford, United Kingdom*.

Online Kinetics Study of Oxidative Coupling of Methane (OCM) over La_2O_3 for C_2 Activation
Liu Zebnag[1], Yong Yang[1], Jerry Pui Ho Li[1], Evgeny Vovk[1], Zhu Yan[2], Li Shenggang[3] and Wang Shibin[3], *(1)ShanghaiTech University, China, (2)Nanjing University, China, (3)Shanghai Advanced Research Institute, CAS,, China*.

Influence of Butane-O_2 Treatment of Ga/ZSM-5 for the Efficient Catalytic Cracking of *N*-Butane.
Zenan Ni, *China University of Petroleum Beijing, China*.

Ga-Doped and Pt-Loaded Porous TiO_2-SiO_2 for Photocatalytic Nonoxidative Coupling of Methane
Shiqun Wu[1], Haijun Chen[2], Lingzhi Wang[1] and Jinlong Zhang[3], *(1)East China University of Science and Technology, China, (2)Nankai University, China, (3)East China University of Science & Technology, China*.

Aging of Automotive DOC and SCR Catalysts By Sulfur and Phosphorus from Biofuel and Lube Oil
Sandra Dahlin[1], Johanna Englund[2], Vitaly Mesilov[3], Peter S. Hammershøi[4], Susanna Bergman[3], Yang Xiao[3], Björn Westerberg[5], Steven Bernasek[3], Magnus Skoglundh[2] and Lars J. Pettersson[1], *(1)KTH Royal Institute of Technology, Sweden, (2)Chalmers University of Technology, Sweden, (3)Yale-NUS College, Singapore, (4)Umicore Denmark ApS, Denmark, (5)Scania CV AB, Sweden*.

Decomposition of Energetic Ionic Liquid over IrCu/Honeycomb Catalysts
Jaegyu Woo, Jinwoo Kim, Munjeong Kim, Huiji Ku, Seung Kyo Oh and Jong-Ki Jeon, *Kongju National University, Korea, Republic of (South)*.

Effect of Nickel Promoter on Au/TS-1 Catalysts for Direct Propylene Epoxidation with H_2 and O_2
Weihua Ma, *Nanjing University of Science and Technology, China*.

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Design and Fabrication of High-Efficient Three-Dimensionally Ordered Macroporous Catalysts for Diesel Soot Oxidation
Yuechang Wei, Jing Xiong, Peng Zhang and Qi Yu, *China University of Petroleum, China*.

Unexpected Sintering of Small Supported Ni_2P Under Real Feed Conditions
Yi Du[1], Bradley Wooler[1], Stuart Soled[2], Sal Miseo[2] and Chris Kliewer[3], *(1)ExxonMobil, USA, (2)ExxonMobil Research and Engineering, USA, (3)Exxonmobil Research and Engineering Company, USA*.

Continuous-Flow Catalysis Based on Pickering Droplets: Bridging Homogeneous and Heterogeneous Catalysis
Ming Zhang, Xiaomiao Guo and Hengquan Yang, *Shanxi University, China*.

Theoretical Investigation of Catalytic Dephosphorylation of Phosphate Monoesters on Ceria Surfaces
Suman Bhasker Ranganath, Chuanlin Zhao and Ye Xu, *Louisiana State University, USA*.

Approaches to Thermal Stabilization of Catalytically Active Metallic MoS_2 1T-Polytype
Santiago Palencia Ruiz[1,2], Denis Uzio[3], Christèle Legens[1], Dorothée Laurenti[2] and Pavel Afanasiev[2], *(1)IFP Energies nouvelles, France, (2)Institut de Recherches sur la Catalyse et l'Environnement de Lyon (IRCELYON), France, (3)Institut Français du Pétrole et Energies Nouvelles (IFPEN), France*.

Design and Synthesis of Efficient Tungsten Oxide Catalyst for Heterogeneous Catalysis: Acetalization of Glycerol
Jin Seo Park, Jung ho Lee, Zhengyang Li and Ji Man Kim, *Sungkyunkwan University, Korea, Republic of (South)*.

Stability of the γ-Alumina Support in Presence of Water in Biomass Conversion Process: Adsorption of Alcohols Investigated By *Ab Initio* molecular Dynamics
Jérôme Rey[1], Romain Réocreux[2], Paul Clabaut[1], Pascal Raybaud[1,3] and Carine Michel[1], *(1)Univ Lyon, Ens de Lyon, CNRS UMR 5182, Université Claude Bernard Lyon 1, France, (2)University College, United Kingdom, (3)IFP Energies nouvelles, France*.

Hydrogen Production By 3D-Printed Au/TiO_2 Photocatalytic Monoliths
Lluis Soler[1], Ander Elkoro[1,2], Ignasi Casanova[1] and Jordi Llorca[1], *(1)Universitat Politecnica de Catalunya, Spain, (2)Mondragon Unibertsitatea, Spain*.

A Two-Step Approach for Catalytic Conversion of 2,3-Butanediol to n-Butenes-Rich Olefins
Vanessa Dagle[1], Robert A. Dagle[1], Libor Kovarik[1], Frederick Baddour[2], Susan Habas[2] and Richard Elander[2], *(1)Pacific Northwest National Laboratory, USA, (2)National Renewable Energy Laboratory, USA*.

Combined Solid–State NMR and Model Reaction Studies of Surface Acidity in the Presence of Water
Bo Yan, *Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences, China*.

Effect of Ce Species in the Soot Oxidation Using $LaMnO_3$ As Support.
Arquimedes Cruz-Lopez[1], Eddy Moreno-Román[1], Rodolfo Zanella[2] and Santiago Suarez_Vazquez[1], *(1)Universidad Autonoma de Nuevo León, Mexico, (2)Instituto de Ciencias Aplicadas y Tecnología, Universidad Nacional Autónoma de México, Mexico*.

Beyond Tin-Containing Zeolites – New Opportunities in Catalytic Carbohydrate Conversion By Tin-Organic Frameworks
Artur Gantarev[1], Irina Delidovich[2] and Marcus Rose[1], *(1)TU Darmstadt, Germany, (2)RWTH Aachen University, Germany*.

Determination of Suspended GO and TiO_2:Fe Optical Properties As Promising Catalysts for Visible Light Operation.
Luis Antonio Ramos Huerta[1], Ana Alexis Gómez Llanos[1], Patricio Javier Valadés Pelayo[1,2], Richard Steve Ruiz Martínez[1], Juan José Cabello Robles[1] and Carlos Omar Castillo Araiza[1], *(1)Universidad Autónoma Metropolitana, Mexico, (2)Universidad Nacional Autónoma de México, Mexico*.

Surface Area Estimates from Adsorption in Nanoporous Catalysts
W. Curtis Conner, *University of Massachusetts Amherst, USA*.

High Temperature Catalyst Development and Testing for the Hybrid Sulfur Thermochemical Water Splitting Cycle
Daniel M. Ginosar[1], Birendra Adhikari[1], Fahim B.A. Rahman[2], Weijian Diao[2], John Meynard Tengco[2], John R. Monnier[2] and Claudio Corgnale[3], *(1)Idaho National Laboratory, USA, (2)University of South Carolina, USA, (3)GreenWay Energy, LLC, USA*.

Operando XAS of $Fe_xNi_{100-X}O_Y$ Electrocatalysts for the Oxygen Evolution Reaction: Role of Electrochemical History and As-Synthesized Properties
Prashant Acharya[1], Ryan Manso[1], Adam Hoffman[2], Simon Bare[2], Jingyi Chen[1] and Lauren Greenlee[1], *(1)University of Arkansas, USA, (2)SLAC National Accelerator Laboratory, USA*.

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Fundamentals of Mechanocatalysis for Use in Lignin Valorization
Andrew Tricker, George Samaras, Karoline Hebisch, Matthew Realff and Carsten Sievers, *Georgia Institute of Technology, USA*.

Catalytic Hydrogenation-Rearrangement of Furfural into Cyclopentanol over CNT-Supported Ruthenium-Molybdenum (oxy) Carbides Catalysts
Yujing Weng, Qi Sun and Yulong Zhang, *Henan Polytechnic university, China*.

Fischer-Tropsch Synthesis over Octahedral Molecular Sieve Manganese Oxide Supported Iron Catalysts
Run Xu, Ruonan He, Guofu Xia, Chuanfeng Niu and Zhihai Hu, *Research Institute of Petroleum Processing, SINOPEC, China*.

An Alternative Approach for Oxymethylene Dimethyl Ether Production Via CO_2 Hydrogenation in Methanol Media over MIL-101@Ru Catalysts
Waqar Ahmed, Fan Liang Chan, Huanting Wang and Akshat Tanksale, *Monash University, Australia*.

Effect of Solvent Phase on Liquid Phase Heterogeneous Catalytic Formation of Formaldehyde
Swarit Dwivedi[1], Samir Mushrif[2], Alan Chaffee[1] and Akshat Tanksale[1], *(1)Monash University, Australia, (2)University of Alberta, Canada*.

Direct Decomposition of Nitrous Oxide Using C-Type Yb_2O_3-Co_3O_4 Catalysts
Naoyoshi Nunotani, Chang-Min Cho and Nobuhito Imanaka, *Osaka University, Japan*.

Carbon Nanotube-Supported Catalysts Prepared By a Modified Photo-Fenton Process for Fischer-Tropsch Synthesis
Haider Akmkhelfe, Xu Li, Keith Hohn and Placidus Amama, *Kansas State University, USA*.

Research on the Mechanism of Toluene Removal in Cycled Adsorbed Plasma-Photocatalysis Process
Zhiping Ye[1], Zhen Ye[1], Anton Nikiforov[2] and Jianmeng Chen[1], *(1)Zhejiang University of Technology, China, (2)Ghent University, Belgium*.

Nanoparticles of Co-Ni Alloy Catalysts for Direct Ethanol Synthesis from Syngas
Jiaming Wang, Kang An, Huixian Zhong, Qiang Liu and Yuan Liu, *Tianjin University, China*.

Next-Generation Carbon Based Dehydrogenation Catalysts
Felix Herold[1], Stefan Prosch[1], Wei Qi[2], Alfons Drochner[1] and Bastian J.M. Etzold[1], *(1)Technische Universität Darmstadt, Germany, (2)Shenyang National Laboratory for Materials Science, China*.

Mesoporous γ-Fe_2O_3 Catalyst for the Slurry-Phase Hydrocracking of Vacuum Residue
Qingyan Cui, Xiubin Hu and Xiaojun Bao, *Fuzhou University, China*.

How the Cu^I Site Evolves upon Co-Adsorption of Ammonia and Water in Cu-Exchanged SSZ-13: A DFT Study for Environmental Catalysis
Hugo Petitjean[1], Céline Chizallet[2] and Dorothée Berthomieu[3], *(1)Institut Charles Gerhardt Montpellier, UMR 5253 CNRS-UM-ENSCM, France, (2)IFP Energies nouvelles, France, (3)Institut Charles Gerhardt Montpellier UMR 5253 CNRS-UM-ENSCM, France*.

Effects of Metals on the Lignin Monomer Yields Via Reductive Catalytic Fractionation of Oak
Shinyoung Oh and Jeong-Myeong Ha, *Korea Institute of Science and Technology, Korea, Republic of (South)*.

One-Step Synthesis of High Active and Stable Ni-ZrO_x for Syngas Production through Dry Reforming of Methane
Ye Wang[1,2,3], Qing Zhao[2], Changwei Hu[2] and Patrick Da Costa[1], *(1)Sorbonne Universités, UPMC Univ Paris 06, France, (2)College of Chemistry, Sichuan University, China, (3)Sichuan University, China*.

Mesoporous $Ni_xAl_1O_{2-\Delta}$ Catalysts for Methane Dry Reforming: The Special Role of $NiAl_2O_4$ Spinel Phase and Its Reaction Mechanism
Shuangshuang Zhang and Yanglong Guo, *East China University of Science and Technology, China*.

Highly Efficient Oxidation of Glucose to FDCA Based on Base Metal-Containing Zeolite Catalysts
Magdi Elfergani[1], Natalia Candu[1], Pascal Granger[2], Vasile Parvulescu[1] and Simona Coman[1], *(1)University of Bucharest, Romania, (2)Université Lille, France*.

Linking Molecular-Level Understanding to Bulk Acidic Properties in Zeolite: The Case Study of P-ZSM-5
Ming-Feng Hsieh[1], Stephen Day[2], Catia Freitas[3], Vladimir Zholobenko[3] and Nicolas Bats[1], *(1)Johnson Matthey Technology Centre, United Kingdom, (2)Johnson Matthey Techonology Centre, United Kingdom, (3)Keele University, United Kingdom*.

Plasma-Enhanced Catalysis for Decentralized Green Ammonia Production: A Kinetic Analysis
Kevin Rouwenhorst and Leon Lefferts, *University of Twente, Netherlands*.

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Biomimetic Catalytic the Direct Liquid Phase Epoxidation of Propylene with Molecular Oxygen Under Mild Conditions
Xian-Tai Zhou and Hong-Bing Ji, *Sun Yat-sen University, China*.

Effective Protectant for Supported Cobalt Catalysts Against Metal Leaching in Hydroformylation Reaction
Yurong He, Jiaojiao Zhao, Fei Wang, Yongwang Li, Xiaodong Wen and James Lewis, *Institute of Coal Chemistry, Chinese Academy of Sciences, China*.

Enhancing the Catalytic Activity of Co_3O_4 for the Total Oxidation of Toluene and Propane By Yttrium-Doping
Weidong Zhang[1], Alberto Rodríguez[2], Claude Descorme[1], José Luis Valverde[3] and Anne Giroir-Fendler[1], *(1)Univ. Lyon, Université Claude Bernard Lyon 1, CNRS, IRCELYON, 2 avenue Albert Einstein, Villeurbanne F-69622, France, (2)Department of Chemical Engineering, Faculty of Chemical Science and Technology, University of Castilla-La Mancha, Avenida Camilo José Cela 12, Ciudad Real 13005, Spain, (3)R&D&i Department, Phi4Tech, Carretera de Ocaña 29, Noblejas 45350, Spain*.

CO_2 Reduction on Mo_2C Yielding Platform Chemicals
Wijnand Marquart[1], Gonzalo Prieto[2], Brian Doyle[3], Michael Claeys[1] and Nico Fischer[1], *(1)Catalysis Institute and c*change (DST-NRF Centre of Excellence in Catalysis), University of Cape Town, South Africa, (2)Instituto de Tecnología Química, Spain, (3)University of Johannesburg, South Africa*.

Kinetic Study of Oxygen Evolution Reaction on IrO_x at Various pH
Takeshi Nishimoto, Tatsuya Shinagawa and Kazuhiro Takanabe, *The University of Tokyo, Japan*.

$[Cu_2(mand)_2(hmt)]$ – MOF: A Synergetic Effect between Cu(II) and Hexamethylenetetramine in the Henry Reaction
Horatiu Szalad, Natalia Candu, Camelia Bala, Bogdan Cojocaru, Traian Pasatoiu, Marius Andruh and Vasile Parvulescu, *University of Bucharest, Romania*.

Dynamic Behavior of Ni–Cu Alloy Catalyst during Three-Way Catalytic Reaction
Hiroyuki Asakura, Tetsuo Onuki, Saburo Hosokawa, Kentaro Teramura and Tsunehiro Tanaka, *Kyoto University, Japan*.

Highly Active Ruthenium Metathesis Catalysts at Low Temperatures: Unprecedented Ring-Opening Metathesis Polymerization of Cyclopentadiene
Soon Hyeok Hong, *Korea Advanced Institute of Science and Technology (KAIST), Korea, Republic of (South)*.

Lanthanum Incorporation in Ag/CeO_2 for Low Temperature Soot Oxidation
Jaesung Lee and Kwan-Young Lee, *Korea University, Korea, Republic of (South)*.

Zirconia-Supported Rhenium Oxide As an Efficient Catalyst for the Synthesis of Biomass-Based Adipic Acid Ester
Weiping Deng, Jinchi Lin, Haiyan Song, Qinghong Zhang and Ye Wang, *Xiamen University, China*.

Preparation of Twinned Ag Nanoparticles By CO Gas Treatment for Improving CO Oxidation Activity
Takehiro Tamura[1], Kyoichi Sawabe[1], Junya Ohyama[2,3] and Atsushi Satsuma[1,3], *(1)Nagoya University, Japan, (2)Kumamoto University, Japan, (3)Kyoto University, Japan*.

Selective Construction of Electron-Trapping Defects in Wide-Band Apatite Compounds
Zhongxian Qiu[1,2], Qin Wang[2], Lizhi Fu[2], Ruiling Li[2], James Lewis[1] and Xiaodong Wen[1], *(1)Institute of Coal Chemistry, Chinese Academy of Sciences, China, (2)Hunan Normal University, China*.

A Novel One-Pot Synthesis of Hierarchical Porous Cu-SSZ-13 Catalyst with Excellent C_3H_6-SCR Performance Under Lean-Burn Conditions
Hao Zhou[1], Congying Wang[2], Di Yang[2] and Yaxin Su[2], *(1)Changzhou Institute of Engineering Technology, China, (2)Donghua University, China*.

Selective Hydrogenation of the Carbonyl Group on $Fe_3O_4@SiO_2@MeO_2$-Pt (Me=Ti, Ce) Core@Shell Structures
Gina Pecchi, Cristian H. Campos and Robinson Dinamarca, *Universidad de Concepción, Chile*.

Multifunctionality of Cu-Ce-Zr Mixed Oxides Catalyst in Various Catalytic Reactions
Qu Zhenping, Weiwei Wang and Hongchun Sun, *Dalian University of Technology, China*.

Cobalt Phosphonate-Derived Cobalt Phosphate-Carbon Hybrids As Oxygen Electrocatalysts
Lei Chen[1] and Zhong-Yong Yuan[2], *(1)Nankai Unirversity, China, (2)NanKai University, China*.

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Role of Mn Addition in Ni/SBA-15 Under Biomass Gasification
Shuji Tanabe[1], Zan Win Moh Moh Phoo[2], Nway Nay Hlaing[3], Yoshiya Tabuchi[1], Osamu Nakagoe[1], Hideaki Sano[1] and Guobin Zheng[1], *(1)Nagasaki University, Japan, (2)Mandalay Technological University, Myanmar, (3)Yangon Technological University, Myanmar*.

Role of By-Products in Maleic Anhydride Kinetics
Mauritio Müller[1], Gerhard Mestl[2] and Thomas Turek[1], *(1)Clausthal University of Technology, Germany, (2)Clariant AG, Germany*.

Structure and Phase Behavior of the Confined Water in Graphene Nanocapillaries Studied By ABEEMσπ Polarizable Force Field
Lanlan He, *KTH Royal Institute of Technology, Sweden*.

Visible-Light Driven C-H Bond Activation and Building C-C Bonds from CO_2 with the Hybrid System of Photocatalytic Dye and Biocatalyst
Yutaka Amao and Takayuki Katagiri, *Osaka City University, Japan*.

Organic Nitrogen Influence on the Reduction of Polyaromatic Hydrocarbons
Jacob Venuti Bjorkman[1,2], Lars J. Pettersson[2] and Lina Norberg Samuelsson[1], *(1)Nynas AB, Sweden, (2)KTH Royal Institute of Technology, Sweden*.

Prediction and Rationale of Enhanced Catalyst Enantioselectivity within MOF
Jerome Canivet[1], David Farrusseng[1] and Caroline mellot-Draznieks[2], *(1)CNRS, Université de Lyon 1, France, (2)Collége de France, CNRS, PSL, France*.

The Role of CO_2 over Different Binary Catalysts in Methanol Synthesis
Fan Zhang, Xiaoying Xu and Aihua Xing, *National Institute of Clean-and-low-carbon Energy, China*.

Selective Catalytic Reduction of Nitric Oxide with Propylene over Fe/Beta Catalysts Under Lean-Burn Conditions
Hao Zhou[1], Mengyao Ge[1], Huishuang Zhao[1], Shiguo Wu[1], Mengyu Li[1] and Yaxin Su[2], *(1)Changzhou Institute of Engineering Technology, China, (2)Donghua University, China*.

Role of CO_2 and H_2O Adsorption Competition in the Combined Dry-Steam Reforming of Biogas
Nolven Guilhaume, Daniel Bianchi and Yves Schuurman, *Univ Lyon, CNRS, France*.

Plasmonic Microreactors As Light Harvesting Devices for Catalysis
Sergio Muñoz Palacios, Marek Grzelczak, Ana Sánchez-Iglesias, Ángel Martín, María José Cocero, Roland Dittmeyer and Alexander Navarrete, *Karlsruhe Institute of Technology, Germany*.

The Role of Coordination Unsaturated O_{2c}-Ti_{5c}-O_{2c} Site on Selective Oxidation of Long Chain Fatty Alcohols
Junting Feng, Dianqing Li, Pengfei Yang and Jiahao Pan, *Beijing University of Chemical Technology, China*.

Genesis and Role of Copper Acetylide Cu_2C_2 As Active Species in the Catalytic Ethynylation of Formaldehyde to 1,4-Butynediol
Tobias Bruhm, Oliver Thomys, Andrea Abram, Johannes Häusler and Klaus Köhler, *Technical University of Munich, Germany*.

Aqueous Phase Hydrodeoxygenation of Microalgae Oil to Transportation Fuels
Lara Milakovic[1], Yue Liu[1], Eszter Barath[1] and Johannes A. Lercher[1,2], *(1)Technical University of Munich, Germany, (2)Pacific Northwest National Laboratory, USA*.

Atomically Dispersed Iron Hydroxide Anchored on Pt for Preferential Oxidation of CO in H_2
Lina Cao and Junling Lu, *university of science and technology of china, China*.

Leaching of Catalyst Components from Cu-Al-Spinel during Hydrogenation
Andrea Abram[1], Christoph Dörfelt[2], Michelle Hammerton[3], Moniek Tromp[4] and Klaus Köhler[1], *(1)Technical University of Munich, Germany, (2)Clariant Produkte (Deutschland) GmbH, Germany, (3)University of Amsterdam, Netherlands, (4)University of Groningen, Netherlands*.

Extraordinary Zeolite Flexibility for Adsorption and Separation of Olefins
Shuai Chang, Sung Jun Park, Hoi-Gu Jang and Sung June Cho, *Chonnam National University, Korea, Republic of (South)*.

Investigating Different Nonprecious Transition Metal-Based Catalysts for Light Enhanced CO_2 Reduction to CH_4
Sana Ullah, *University of New South Wales Sydney, Australia*.

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Synthesis and Characterization of Cs and V Modified $H_3PMo_{12}O_{40}$ Supported on Al-MCM-41 and Their Catalytic Performance in Propane ODH Reaction
Gilliani P. Miranda, Erika B. Silveira, Virgilio J. M. Ferreira Neto, Alexandre F. Young, Erika C. T. Ribeiro, Carla R. Ramos, Paulo Gustavo Pries de Oliveira and Fabiana M. T. Mendes, *Instituto Nacional de Tecnologia, Brazil*.

X-Ray Photoelectron Spectroscopy and Raman Spectroscopy of Soot Combustion over Nanoshaped Ceria Under Operando Conditions
Xenia Garcia de Andrés[1,2], Carlos Escudero[2] and Jordi Llorca[1], *(1)Universitat Politecnica de Catalunya, Spain, (2)ALBA Synchrotron Light Source, Spain*.

The Influence of Ag and ZrO_2 Components on the Catalytic Cascade Reaction of Ethanol to Butadiene
Naomi Miyake and Robert J. Davis, *University of Virginia, USA*.

Significance of Metal Identity on Solvation Effects for Surface Reactions
Mehdi Zare and Andreas Heyden, *University of South Carolina, USA*.

Cellulose As a New Templating Media for Combustion Synthesis of NiO-MgO Solid Solution Catalysts for the Dry Reforming of Methane
Vardan Danghyan, Tatyana Orlova, Alexander Mukasyan and Eduardo E. Wolf, *University of Notre Dame, USA*.

Design of CNT/TiO_2 Photocatalysts for Efficient Oxidation of NO_x
Brian Everhart, Bailey McAuley, David Hawkins, David Ortiz and Placidus Amama, *Kansas State University, USA*.

Unfolding the Molecular Origami: Identifying Catalytic Requirements for the Diels-Alder Cycloaddition Reaction
Ferdy Coumans[1], Ezgi Demiröz[2], Evgeny Uslamin[3], Nikolay Kosinov[1] and Emiel J. M. Hensen[1], *(1)Eindhoven University of Technology, Netherlands, (2)Gazi University, Turkey, (3)Delft University of Technology, Netherlands*.

Hierarchically Porous Zr-Based MOFs As Efficient Catalysts for Deep Oxidative Desulfurization of Fuels
Leiduan Hao and Qiang Zhang, *Washington State University, USA*.

Unravelling the Isolated Cu^{2+} Species Formed in Hydrothermally Aged Cu/SSZ-13 As per in Situ EPR
Yani Zhang[1], Eric D. Walter[2], Feng Gao[3] and Junhua Li[1], *(1)Tsinghua University, China, (2)Environmental Molecular Sciences Laboratory, USA, (3)Pacific Northwest National Laboratory, USA*.

Study on Carbon Cycle of Liquid Organic Hydrogen Carriers in Hydrogen Supply System over Supported Pt Catalyst
Xiaotong Zhang and Hongchen Guo, *Dalian University of Technology, China*.

NO Reduction with Propene over Ag-Fe/MOR Catalysts: Effect of Particle Size on Catalytic Activity
Perla Sánchez[1], Marina Shelyapina[2], Yulia Kotolevich[1], Vitalii Petranovskii[1] and Sergio Fuentes[1], *(1)Centro de Nanociencias y Nanotecnología, Universidad Nacional Autónoma de México, Mexico, (2)Saint Petersburg State University, Russian Federation*.

Synthesis of Poly(ether carbonate) Polyols By Copolymerization of CO_2 over Double Metal Cyanide Catalyst
Joon Hyun Baik[1], Il Kim[2], Sung Chul Hong[3] and Jung Ho Cho[4], *(1)Research Institute of Industrial Science & Technology (RIST), Korea, Republic of (South), (2)Pusan National University, Korea, Republic of (South), (3)Sejong University, Korea, Republic of (South), (4)Kongju National University, Korea, Republic of (South)*.

Controlling Catalytic Properties of Nanoclusters Encapsulated in Metal-Organic Frameworks through Linker Engineering
Wenyu Huang, *Ames Laboratory, USA; Iowa State University, USA*.

Tuning Iridate Perovskites for Activity and Stability in Acidic Electrochemical Water Splitting
Linsey Seitz, *Northwestern University, USA*.

Reaction Condition- Sensitive CO Oxidation Pathways on Pt(111) Surface
Peng Chai, Weixin Huang and Jinlong Yang, *University of Science and Technology of China, China*.

Effects of Fluidizing Gas on Copper-Manganese Mixed Oxide's Reactivity for Chemical Looping Combustion of CH_4
Turna Barua and Bihter Padak, *University of California, Irvine, USA*.

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An Experimental and Modeling Study of an Intensified Membrane Reactor (MR)/Adsorptive Reactor (AR) Sequence (MR-AR) for Hydrogen Production for Power Generation
Mingyuan Cao[1], Linghao Zhao[1], Dongwan Xu[1], Seçgin Karagöz[2], Patricia Pichardo[2], Richard J Ciora[3], Paul K.T Liu[3], Doug Parsley[3], Vasilios I Manousiouthakis[2] and Theodore. T Tsotsis[1], *(1)University of Southern California, USA, (2)University of California, Los Angeles, USA, (3)Media and Process Technology, Inc, USA*.

Methanol to Olefins Reaction Route Based on Methylcyclopentadienes As Critical Intermediates
Wenna Zhang[1], Yuchun Zhi[1], Shutao Xu[1], Anmin Zheng[2], Yingxu Wei[1] and Zhongmin Liu[1], *(1)Dalian Institute of Chemical Physics, Chinese Academy of Sciences, China, (2)Wuhan Institute of Physics and Mathematics, China*.

Atomically Dispersed Cu Catalyst for Efficient C-O Bond Formation
Guodong Ding, Leiduan Hao, Xiaoyu Li and Qiang Zhang, *Washington State University, USA*.

Bi-Reforming of Methane with CO_2 over Ni Supported on La-Sr Mixed Oxide Catalysts
Lingaiah Nakka, *CSIR-Indian Institute of Chemical Technology, India*.

Investigation of Pd-Pt Core@Shell Catalytic System for Direct Synthesis of Hydrogen Peroxide: High-Index, Alloy, and Hydride
Geun-Ho Han[1], Xiangyun Xiao[2], Min-Cheol Kim[3], Jaeyoung Hong[4], Hong-Kyu Kim[4], Jae-Pyoung Ahn[4], Sang Soo Han[3], Taekyung Yu[2] and Kwan-Young Lee[1], *(1)Korea University, Korea, Republic of (South), (2)Kyung Hee University, Korea, Republic of (South), (3)Korea Institute of Science and Technology (KIST), Korea, Republic of (South), (4)Korea Institution of Science and Technology, Korea, Republic of (South)*.

Wastewater Remediation with Fe-Doped Clinoptilolite: Degradation of Azo-Dyes Acid Orange 7 By H_2O_2 and Ascorbic Acid
Melodj Dosa, Marco Piumetti, Samir Bensaid, Nunzio Russo and Debora Fino, *Politecnico di Torino, Italy*.

Mechanistic Understandings on the Au/α-MoC Catalyst in Low Temperature Water-Gas Shift Reaction
Siyu Yao[1] and Ding Ma[2], *(1)Zhejiang University, China, (2)Peking University, China*.

On the Role of Adsorption in Photocatalysis – Mechanistic Insights Using Compound Speciation Towards More Accurate Data Description
Philippe Heynderickx[1,2], Keshab Adhikary[1] and Chien-Hou Wu[3], *(1)Ghent University Global Campus, Korea, Republic of (South), (2)Ghent University, Belgium, (3)National Tsing Hua University, Taiwan*.

Sweet Preparation of the Catalysts for CO_X Hydrogenation
Wensheng Ning, *Zhejiang University of Technology, China*.

The Contribution of the Center Atoms Away from Surface Sites to Catalytic Performance
Zhu Yan, *Nanjing University, China*.

Solvent-Free Selective Oxidation of Toluene Using an Ultrasmall Au Clusters Catalyst
He Huang, Wanyue Ye and Rongwen Lu, *Dalian University of Technology, China*.

Novel and Highly Dispersed Ni-Doped Aeigirine Nanocatalysts for the Selective Hydrogenation of Olefins from Light Petroleum Streams
Khaled Sebakhy, *University of Groningen, Netherlands*.

Experimental and Theoretical Studies on the Reverse Water Gas Shift Reaction over La-Doped Ni-CeO_2 Catalysts
Consuelo Alvarez-Galvan[1], Pablo Lustemberg[2], Jose A. Alonso[3], Maria Herranz[1], Jesus Cebollada-Borao[1], Jose M. Campos-Martin[1] and M. Verónica Ganduglia-Pirovano[2], *(1)Instituto de Catálisis y Petroleoquímica (CSIC), Spain, (2)Instituto de Catálisis y Petroleoquímica (ICP-CSIC), Spain, (3)Instituto de Ciencia de Materiales de Madrid, Spain*.

Intramolecular Guerbet Reaction of 1,6-Hexanedilol into Cyclopentanemetanol over Strontium Hydroxyapatite Compound Catalysts
Ayumu Onda, *Kochi University, Japan*.

Rational Catalyst Design Powered By Automated Information Extraction
Pedro Mendes, Sébastien Siradze, Laura Pirro and Joris Thybaut, *Ghent University, Belgium*.

Unraveling the Chemical State of Ball-Milled Pd/CeO_2 Catalysts Under *Operando* Methane Complete Combustion Conditions
Núria J. Divins[1], Maila Danielis[2], Andrea Mussio[2], Sara Colussi[2], Alessandro Trovarelli[2] and Jordi Llorca[1], *(1)Universitat Politecnica de Catalunya, Spain, (2)University of Udine, Italy*.

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Cerium-Copper-Manganese Oxides Synthesized Via Solution Combustion Synthesis (SCS) for Total Oxidation of VOCs
Miguel Marin Figueredo, Marco Piumetti, Samir Bensaid, Melodj Dosa, Debora Fino and Nunzio Russo, *Politecnico di Torino, Italy*.

Reactivity of Cu and Fe Centers of Various Nuclearity in Beta Zeolite Towards Oxidation of Hydrocarbons
Alena Vondrova, Jaroslava Moravkova, Radim Pilar, Galina Sadovska, Stepan Sklenak, Jana Pastvova and Petr Sazama, *J. Heyrovský Institute of Physical Chemistry of the CAS, Czech Republic*.

Synthesis of Boron Containing Ni, Co, Ni-Co/$MgAl_2O_4$ Catalyst for Dry Reforming of Methane
MD Shakir, *Fuels and Energy Technology Institute, Curtin University of Technology, Perth, (Australia), Australia; Indian Institute of Technology (Indian School of Mines), Dhanbad 826004 (India), India*.

Micro-Kinetic Comparison of CO and CO_2 Hydrogenation over Fe(100)
Eric van Steen, R. Kyle Abrahams, Farhanna Allie, Jabulani Nyathi and Thobani Gambu, *University of Cape Town, South Africa*.

Aluminosilicate Catalysts for Residual Glycerol Conversion from Biodiesel Production
Cinthia Oliveira, *Federal University of Minas Gerais, Brazil*.

Inhibition Effect of Nitrogen on Olefin Hydrogenation As Related to the Partial Upgrading of Bitumen
Jing Shen and Natalia Semagina, *University of Alberta, Canada*.

The Role of P in Light Alkane Dehydrogenation with Metal Phosphide Catalysts
Jessica Muhlenkamp, Jeonghyun Ko, William F. Schneider and Jason Hicks, *University of Notre Dame, USA*.

Pt Adsorption and Exsolution from $ATiO_3$ Perovskites
Bader Alayyoub, Abhinav S. Raman and Aleksandra Vojvodic, *University of Pennsylvania, USA*.

Microwave Effects in Catalysis and Catalyst Synthesis
W. Curtis Conner, *University of Massachusetts Amherst, USA*.

Coupling of Thermocatalysis and Electrocatalysis for Efficient Chemical Synthesis in Protonic Ceramic Electrochemical Membranes
Bin Hua, Meng Li and Dong Ding, *Idaho National Laboratory, USA*.

Co@TiO_2 Derived from ZIF-67 As Catalyst for Fischer-Tropsch Synthesis
Xin Li and Debasish Kuila, *North Carolina A&T State University, USA*.

Selective Conversion of CO_2 to Methanol By Plasmonic Photocatalysis
Yibo Zhao, Xianzhi Fu and Jinlin Long, *State Key Laboratory of Photocatalysis on Energy and Environment, College of Chemistry, Fuzhou University, Fuzhou, China*.

Partial Oxidation of Methanol to Formaldehyde (MTF) in an Annular Reactor
Stine Lervold[1], Rune Lødeng[2], Jia Yang[3], Kristin Bingen[4], Johan Skjelstad[5] and Hilde Johnsen Venvik[6], *(1)NTNU - Norwegian University of Science and Technol, Norway, (2)SINTEF Industry, Norway, (3)Norwegian University of Science and Technology (NTNU), Norway, (4)Dynea AS, Norway, (5)KA Rasmussen AS, Norway, (6)Norwegian University of Science and Technology, Norway*.

Understanding Soot Accumulation and Combustion Mechanisms on Gasoline Particulate Filters
Pavel Ruvinskiy, Manish Sharma, Matthew Schladt and Chunxin Ji, *BASF, USA*.

Ethanol Conversion to Value-Added Molecules Assisted By Oxygen Vacancies over Sr-Doped $LaMnO_3$ Catalysts
Bo Chen, Zhenghong Bao and Aditya Savara, *Oak Ridge National Laboratory, USA*.

Reversible Interconversion of Metal Clusters in Faujasite Cages: Rh_1, Rh_4, and Rh_6 Controlled By the Catalytic Water Gas Shift Reaction
Chia-Yu Fang[1], Jose Valecillos-Diaz[2], Edward Conley[1], Cong-Yan Chen[3], Pedro Castaño[2] and Bruce C. Gates[1], *(1)University of California Davis, USA, (2)University of the Basque Country, Spain, (3)Chevron, USA*.

Theory Driven Catalysts Design for Hydrogenation and Dehydrogenation Reactions in Solid Oxide Electrolyzer
Meng Li, Bin Hua, Lucun Wang, Hanping Ding and Dong Ding, *Idaho National Laboratory, USA*.

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Hydrogen Production By Butanol Steam Reforming over Nickel Catalysts Supported on Promoted Alumina
João Paulo Menezes, Adriana Dias, Mônica A. P. da Silva and Mariana Souza, *Universidade Federal do Rio de Janeiro (UFRJ), Brazil*.

Selective Production of Ethylbenzene from Lignin Oil over FeO_x Modified Ru/Nb_2O_5 Catalyst
Lingxiao Li, Lin Dong, Xiaohui Liu, Yong Guo and Yanqin Wang, *East China University of Science and Technology, China*.

Understanding the Roles of NbO_x Species in $C_{aromatic}$-C Bonds Cleavage in Lignin Transformation
Lin Dong, Xiaohui Liu, Yong Guo and Yanqin Wang, *East China University of Science and Technology, China*.

Heterogeneously Catalyzed Selective Synthesis of Primary Anilines from NH_3 and Cyclohexanones
Kazuya Yamaguchi, *The University of Tokyo, Japan*.

Heterolytic Hydrogen Activation: Understanding Support Effects in Water-Gas Shift Reaction and Hydrodeoxygenation Catalysis
Nicholas Nelson and Janos Szanyi, *Pacific Northwest National Laboratory, USA*.

Structured Catalysts for Gaseous and Liquid Hydrocarbon Fuels Processing to Hydrogen-Rich Gas
Pavel Snytnikov[1,2,3], Vladimir Rogozhnikov[1,2], Dmitriy Potemkin[1,2], Pavel Simonov[1,2], Zaliya Fedorova[1,2], Vladimir Belyaev[1,2], Aleksey Pechenkin[1,2], Sukhe Badmaev[1,2], Sergey Zazhigalov[1,2], Andrey Zagoruiko[1,2] and Vladimir Sobyanin[1,2], *(1)Boreskov Institute of Catalysis, Russian Federation, (2)Novosibirsk State University, Russian Federation, (3)«UNICAT» LLC, Russian Federation*.

Designing Plasmonic Nanoparticles for Localized Surface Plasmon Induced Reactions
Renu Sharma, Wei-Chang David Yang and Canhui Wang, *National Institute of Standards and Technology, USA*.

Impact of Changing Silica/Alumina Ratio (SAR) in ZSM-5 Frameworks in Fluid Catalytic Cracking
C. P. Kelkar, *BASF Corporation, USA*.

Effect of Ion Exchange Protocol on the Copper Exchange Efficacy, Copper Siting, and SCR Activity
Aibolat Koishybay[1], Daniel F. Shantz[1], Ayman M. Karim[2], Chun-Te Kuo[2], Kyle Groden[3] and Jean-Sabin McEwen[3], *(1)Tulane University, USA, (2)Virginia Polytechnic Institute and State University, USA, (3)Washington State University, USA*.

Catalytic Consequences of Two Synthetic Methods for Supported Gold Alloy Nanoparticles in Oxidation Catalysis
Joseph Brindle and Michael M. Nigra, *University of Utah, USA*.

Highly Porous IrO_2 Catalyst Prepared By Modified Adams Fusion Method Using Coordination Agent for Oxygen Evolution Reaction
Chaekyung Baik, Seung Woo Lee and Chanho Pak, *Gwangju Institute of Science and Technology, Korea, Republic of (South)*.

Intrinsic Kinetics of Dry Reforming of Methane on Ex-Solution Synthesized Ni-La_2O_3 Catalysts
Stivenson Sandoval, Edgar M. Morales-Valencia, Luz Ballesteros and Victor Baldovino Medrano, *Universidad Industrial de Santander, Colombia*.

Revealing Property-Performance Relationships through Statistical Analysis of Literature Data for Efficient CO_2 Hydrogenation to Higher Hydrocarbons
Qingxin Yang[1], Martin J. G. Fait[1], Martin Holena[1] and Evgenii V. Kondratenko[2], *(1)Leibniz-Institut für Katalyse e. V., Germany, (2)Leibniz-Institut für Katalyse e.V., Germany*.

Preliminary Screening of Heterogeneous Ni-Based Catalyst for Further Modifications Targeting Enhanced Production of α-Olefins
Idoia Hita, Omar A. Abed, Adrian Ramirez, Hend Omar Mohamed and Pedro Castaño, *King Abdullah University of Science & Technology, Saudi Arabia*.

Exploring the Synergism between Catalysis and Photocatalysis on TiO_2-CoO_x Composites
Roberto Fiorenza[1], Salvatore Scirè[1], Marcello Condorelli[1], Luisa D'Urso[1], Giuseppe Compagnini[1], Marianna Bellardita[2] and Leonardo Palmisano[2], *(1)University of Catania, Italy, (2)University of Palermo, Italy*.

Unprecedented High Activity and Stability of Cu/SBA-15 Catalysts in Liquid Phase Furfural Hydrogenation.
Robert Wojcieszak, *Centre National de la Recherche Scientifique (CNRS), France*.

Studies of Synergetic Effect between CuO and CeO_2 on Catalytic Oxidation of CO and C_3H_6
Yang Geng[1,2], Zihao Li[1], Xiaoyin Chen[1], Shijian Yang[2] and Johannes W. Schwank[1], *(1)University of Michigan, USA, (2)Jiangnan University, China*.

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Biojet and Diesel Fuel Components from Biomass Pyrolysis Oil Using Highly Dispersed Catalysts
Jacques Monnier and Yi Zhang, *Natural Resources Canada, Canada*.

How and Why Spent Household Alkaline Manganese Based Batteries Are Suitable Methane Combustion Catalysts
Edwing Velasco, Carol Espinosa, Luz Ballesteros and Victor Baldovino Medrano, *Universidad Industrial de Santander, Colombia*.

Exploiting the Dynamic Properties of Pt on Ceria for Low Temperature CO Oxidation
Géraldine Ferré[1], Philippe Vernoux[1], Mimoun Aouine[1], Françoise Bosselet[1], Laurence Burel[1], Francisco Cadete Santos Aires[1], Christophe Geantet[2], Spyridon Ntais[1], Florian Maurer[3], Maria Casapu[3], Jan-Dierk Grunwaldt[3], Thierry Epicier[4] and Stéphane Loridant[1], *(1)IRCELYON, France, (2)University of Lyon / CNRS, France, (3)Karlsruhe Institute of Technology (KIT), Germany, (4)Univ Lyon, INSA-Lyon, France*.

Photocatalytic Reduction of Carbon Dioxide to Carbon Monoxide with Water over Modified Potassium Hexatitanate Crystal Photocatalysts
Xing Zhu[1], Akira Yamamoto[1], Shota Imai[2], Atsuhiro Tanaka[2,3], Hiroshi Kominami[2] and Hisao Yoshida[1], *(1)Kyoto University, Japan, (2)Kindai University, Japan, (3)Japan Science and Technology Agency (JST), Japan*.

Trapping Properties of Ag/SSZ-13 Zeolite: Modeling Adsorption Capacity
Eric Walker[1], Caitlin Horvatits[1], Dan Li[1], Michel Dupuis[1] and Eleni A. Kyriakidou[2], *(1)SUNY Buffalo, USA, (2)University at Buffalo, USA*.

Combining Propane Dehydrogenation with Olefin Metathesis: A Selective Route Towards Propylene and Light Olefins Production
Marianna Gambino[1], Ramon Oord[1], Matteo Monai[1], Sirada Sripinun[1,2], Sippakorn Wannakao[3], Florian Meirer[1], Suttichai Assabumrungat[2], Kongkiat Suriye[3] and Bert Weckhuysen[1], *(1)Utrecht University, Netherlands, (2)Chulalongkorn University, Thailand, (3)SCG Chemicals Co. Ltd., Thailand*.

Special Features of Catalysts for Autothermal Adiabatic Operation of Oxidative Coupling of Methane
Wugeng Liang and David West, *SABIC, USA*.

Effect of Silica As a Modifier of the Dispersion Ability of γ-Al_2O_3 Catalyst Supports Towards Ni and Mo Species
Giovanni Pampararo, Gabriella Garbarino, Paola Riani, Elisabetta Finocchio and Guido Busca, *University of Genova, Italy*.

Transformation of Lignin and Woody Biomass into Aromatics and Fuels over Heterogeneous Rhenium-Based Catalysts
Bo Zhang, Tao Zhang and Chanzhi Li, *Dalian Institute of Chemical Physics, Chinese Academy of Sciences, China*.

Room Temperature Dioxygen Dissociation for Methane Oxidation over Man-Made Catalyst
Edyta Tabor, Jiri Dedecek, Kinga Mlekodaj, Zdenek Sobalik and Stepan Sklenak, *J. Heyrovský Institute of Physical Chemistry of the CAS, Czech Republic*.

Prospects of X-Ray Absorption Spectroscopy for Catalysis in the Laboratory
Christopher Schlesiger, Sebastian Praetz, Richard Gnewkow, Wolfgang Malzer and Birgit Kanngießer, *Technische Universität Berlin, Germany*.

Enhanced Hydrothermal Stability of Cu-SSZ-13 NH_3-SCR Catalysts
Wen-Mei Xue, Eduard Kunkes, Ahmad Moini and Burcu Bayram, *BASF Corporation, USA*.

A Molten Carbonate Shell Modified Perovskite Redox Catalyst for Anaerobic Oxidative Dehydrogenation of Light Alkanes
Yunfei Gao and Fanxing Li, *North Carolina State University, USA*.

Hydrogenolysis of Glycerol to 1,2-Propanediol in Alkaline Medium Using Nb_2O_5/Al_2O_3 Supported Ni-Cu Catalysts
Taynara S. Andrade, Mariana M.V.M. Souza and Robinson L. Manfro, *UFRJ, Brazil*.

High-Performance FeO_x/CNT Electrocatalysts for Direct Ammonia Synthesis from N_2 + H_2o By Using an in-Situ Activation Procedure
Shiming Chen[1,2], Siglinda Perathoner[3], Claudio Ampelli[3], Salvatore Abate[3] and Gabriele Centi[1], *(1)University of Messina and ERIC aisbl, Italy, (2)DICP-CAS, China, (3)University of Messina, Italy*.

Topology Dependent Diffusion in Metal-Organic Frameworks for Catalytic Detoxification of Chemical Warfare Agents
Brandon Bukowski and Randall Q. Snurr, *Northwestern University, USA*.

Layered-Double-Hydroxides-Based Single-Atom Catalysts for Electrochemical Hydrogen Production
Xiaomng Sun, *Beijing University of Chemical Technology, China*.

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In Situ Study of Methanol Coupling n-Hexane Cracking Mechanism over HZSM-5 Zeolite Catalysts
Yan Chen, *Chinese Academy of Sciences, China*.

Selective Allylation of Alcohol and Amine Using Molybdenum Oxide Supported Catalyst
Yoshihiro Kon[1], Satoshi Ishikawa[2], Takuya Nakashima[1], Shota Tsurumi[1], Hiroki Nagashima[1], Tadahiro Fujitani[3] and Wataru Ueda[2], *(1)National Institute of Advanced Industrial Science and Technology, Japan, (2)Kanagawa University, Japan, (3)National Institute of Advanced Industrial Science and Technology (AIST), Japan*.

Direct Phenolysis Reactions of Unactivated Amides into Corresponding Esters Promoted By a Heterogeneous CeO_2 Catalyst
S. M. A. Hakim Siddiki[1], Md. Nurnobi Rashed[1], Takashi Toyao[1,2] and Ken-ichi Shimizu[1,2], *(1)Institute for Catalysis, Hokkaido University, Japan, (2)Kyoto University, Japan*.

Multimodal Zeolite Catalysts with Hierarchically Micro-Meso-Macroporous Structure
Lihua Chen[1], Minghui Sun[2] and Baolian Su[1,2], *(1)Wuhan University of Technology, China, (2)University of Namur, Belgium*.

Facile Redox-Driven in-Situ Growth of MnO_2 over Mn_2O_3 for Enhanced Toluene Oxidation: From the Perspective of Active Interfaces
Wenhao Yang and Junhua Li, *Tsinghua University, China*.

H_2-Induced Reconstruction of Pt Nanoparticles in Pt/Al_2O_3 and Pt/C Catalysts Under Reaction Conditions
Michele Carosso[1], Eleonora Vottero[1,2], Sara Morandi[1], Maela Manzoli[1], Kirill Lomachenko[3], Andrea Piovano[2], Monica Jimenez Ruiz[2], Davide Ferri[4], Thibault Fovanna[4], Riccardo Pellegrini[5] and Elena Groppo[1], *(1)University of Torino, Italy, (2)Institut Laue-Langevin (ILL), France, (3)European Synchrotron Radiation Facility, France, (4)Paul Scherrer Institut, Switzerland, (5)Chimet SpA - Catalyst Division, Italy*.

Ni-Ga Catalysts Supported on Mesoporous Silica Applied in CO_2 Hydrogenation to Methanol at Low Pressure
Letícia Rasteiro[1], Cássia Santana[2], Jose M. Assaf[2] and Elisabete M. Assaf[1], *(1)University of São Paulo, Brazil, (2)Federal University of São Carlos, Brazil*.

In Situ Drifts Study of the Basic Sites of Perovskite-Type Catalysts Surface Via CO_2-Chemisorption
Larissa Lopes[1], Davi Petrolini[1], Jose M. Assaf[2] and Elisabete M. Assaf[1], *(1)University of São Paulo, Brazil, (2)Federal University of São Carlos, Brazil*.

Superior Activity of Rh Nanoparticles Incorporated 3D Mesoporous Silica in Cycloalkenes Hydrogenation
Mohamed Hamdy, Muhammed Benaissa and Abdullah Alhanash, *King Khalid University, Saudi Arabia*.

Electrolyte Design Principles for Enabling Li-Mediated Nitrogen Reduction to Ammonia
Dilip Krishnamurthy[1], Nikifar Lazouski[2], Karthish Manthiram[2] and Venkatasubramanian Viswanathan[1], *(1)Carnegie Mellon University, USA, (2)Massachusetts Institute of Technology, USA*.

Computational Studies on the Tunable Effects of Dopants on the Catalytic Properties of Supported Single Metal Atom
Bo Li, *Institute of Metal Research, Chinese Academy of Sciences, China*.

Carbon Catalyzed Hydrolysis of Cellulose to Synthesize Cello-Oligosaccharides in a Semi-Flow Process
Abhijit Shrotri, Pengru Chen and Atsushi Fukuoka, *Hokkaido University, Japan*.

Experimental Investigation and Numerical Analysis of Conductive Packed Foams for Intensified Methane Steam Reforming
Riccardo Balzarotti, Matteo Ambrosetti, Alessandra Beretta, Gianpiero Groppi and Enrico Tronconi, *Politecnico di Milano, Italy*.

Synthesis of Crystalline $MoVMO_x$ Multi-Elements Oxides with M=Sb, Bi, Pb, Tl and Transition Metals with Orthorhombic or Trigonal Structures and Their Application As Catalysts.
Thi Minh Nha Le[1], Mimoun Aouine[2] and Millet Jean-Marc[3], *(1)CNRS, France, (2)University of Lyon, France, (3)Claude Bernard university LYON 1 CNRS, France*.

Photocatalytic Non-Oxidative Coupling of Methane over Pd-Loaded Ga_2O_3 in a Flow Reactor.
Surya Pratap Singh, Akira Yamamoto and Hisao Yoshida, *Kyoto University, Japan*.

MOF Encapsulated Single-Atom Pt Catalysts for Photocatalytic Hydrogen Evolution
Donghai Mei, *Tianjin Polytechnic University, China*.

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CO Oxidation on 4d and 5d Transition Metals Atomically Dispersed on MgO to Address Periodic Trends in Single-Atom Catalysis
Bidyut Bikash Sarma[1], Philipp Plessow[2], Giovanni Agostini[3], Norbert Pfaender[4], Felix Studt[2] and Gonzalo Prieto[5], *(1)Max-Planck-Institute für Kohlenforschung, Germany, (2)Karlsruhe Institute of Technology, Germany, (3)ALBA Synchrotron Light Source, Spain, (4)Max-Planck-Institut für Chemische Energiekonversion, Germany, (5)ITQ Instituto de Tecnología Química (UPV-CSIC), Spain*.

3D Printed Resin Catalyst Supports: A Novel Approach for External Mass Transfer Characterization of Complex Geometries
Federico Sascha Franchi, Matteo Ambrosetti, Mauro Bracconi, Riccardo Balzarotti, Gianpiero Groppi and Enrico Tronconi, *Politecnico di Milano, Italy*.

Environmental Impact of the Synthesis of RhPt/CeO_2-SiO_2 and Au-CuO/CeO_2 Catalysts on the Power Production from Biomass: A Life Cycle Assessment
Nestor Sanchez[1], Bernay Cifuentes[2], Ruth Ruiz[1], Anne Rödl[3] and Martha Cobo[1], *(1)Universidad de La Sabana, Colombia, (2)Universidad de Antioquia, Colombia, (3)Hamburg University of Technology, Germany*.

AdSCR (NOx Adsorber + Selective Catalytic Reduction) Systems for the Abatement of NOx Cold Start Emissions
Federica Gramigni[1], Nicole Daniela Nasello[1], Tommaso Selleri[1], Isabella Nova[1], Enrico Tronconi[1], Simone Dieterich[2], Michel Weibel[2] and Volker Schmeisser[3], *(1)Politecnico di Milano, Italy, (2)Mercedes-Benz AG, Germany, (3)Daimler Truck AG, Germany*.

Enhanced Alkaline Oxygen Evolution Using Hybrid Co@$Ni_{12}P_5$/PPY
Swetha Ramani, Sadik Cogal, Jeffery Lowe, Venkat R. Bhethanabotla and John N. Kuhn, *University of South Florida, USA*.

Influence of Pt Promotion on CO_2 Capture and Conversion to CH_4 over a Ni,"Na_2O"/Al_2O_3 Dual Functional Material: An *in-Situ* Drifts Study
Laura Proaño[1], Martha A. Arellano-Treviño[2], Robert J. Farrauto[2] and Martha Cobo[1], *(1)Universidad de La Sabana, Colombia, (2)Columbia University, USA*.

Tunable, Carburization-Free Routes to Molybdenum Carbide
Kurt Van Allsburg[1], Anurag Kumar[2], Andrew Royappa[2] and Frederick G. Baddour[2], *(1)National Renewable Energy Lab, USA, (2)National Renewable Energy Laboratory, USA*.

Multifunctional Catalyst Design for One-Pot Conversion of Woody Biomass to Biofuel
Hannah Nguyen, Daniela Stuck, Davis Conklin, Nicholas Cleveland and Derek Vardon, *National Renewable Energy Laboratory, USA*.

On the Simultaneous Effect of the Water Content and Temperature on the Acrylic Acid Production out of Propane
Héctor Armendáriz-Herrera, María de L. Guzmán-Castillo, Roberto Quintana-Solorzano, Andrea Rodríguez-Hernández, Jaime Sanchez Valente and Isidro Mejia-Centeno, *Instituto Mexicano del Petróleo, Mexico*.

Low Temperature Dry Reforming of Methane over Pt Promoted NiCe@SiO_2 Multi–Yolk–Shell Nanotube Catalysts
Erdem Sasmaz and Sunkyu Kim, *University of California, Irvine, USA*.

Effect of Pt Pre-Sintering on the Durability of PtPd/Al_2O_3 Catalysts for CH_4 Oxidation
Jaekyoung Lee[1], Mi Young Kim[2], Jun Hong Jeon[2], Dae Hyeong Lee[2], Komateedi Rao[2], Dong Gun Oh[1], Eun Jeong Jang[1], Eunseok Kim[2], Seung Chul Na[2], Hyun Sik Han[2] and Ja Hun Kwak[1], *(1)UNIST, Korea, Republic of (South), (2)Heesung Catalysts Corp., Korea, Republic of (South)*.

Catalytic Conversion of Chitin to an Amino Acid *Via N*-Acetylglucosamine
Hirokazu Kobayashi, Kota Techikawara and Atsushi Fukuoka, *Hokkaido University, Japan*.

Chemoselective Hydrodeoxygenation of Palmitic Acid to Diesel-like Hydrocarbons over Ni/MoO_2@Mo_2CT_x Catalyst with Extraordinary Synergic Effect
Junmei Liang, *Tianjin University, China*.

***In Situ* NMR and FTIR Spectroscopy Reveals the Mechanism of Methane Oxidation to Methanol over Copper-Exchanged Mordenite**
Vitaly L. Sushkevich[1], René Verel[2] and Jeroen A. van Bokhoven[2], *(1)Paul Scherrer Institute, Switzerland, (2)ETH Zürich, Switzerland*.

Sorption Enhanced CO_2 Hydrogenation on NiGaZrO_2/MG50 Catalyst
Ranjeet Singh, Yuhan Men and Paul Webley, *The University of Melbourne, Australia*.

Hybrid Copper Zeolite and Cerium-Tin Oxide Catalyst for NO_x SCR with Enhanced Hydrocarbon Poisoning Resistance
Ferenc Martinovic, Fabio Alessandro Deorsola, Samir Bensaid and Raffaele Pirone, *Politecnico di Torino, Italy*.

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Fabrication of Fe@C-Catalysts from Alginate
Joakim Tafjord[1], Samuel K. Regli[2], Magnus Rønning[2], Rune Myrstad[3], Anders Holmen[1], Erling Rytter[1] and Jia Yang[1], *(1)Norwegian University of Science and Technology, Norway, (2)Norwegian University of Science and Technology (NTNU), Norway, (3)SINTEF Industry, Norway*.

CO_2-Assisted Dehydrogenation of Ethane to Ethylene over Carbon-Resistant FeO_x Catalysts
Charis Loizidis[1], Stavros-Alexandros Theofanidis[1], Eleni Heracleous[2] and Angeliki Lemonidou[1], *(1)Aristotle University of Thessaloniki, Greece, (2)International Hellenic University, Greece*.

Performance of $LaCr_{1-X}Ru_xO_3$ catalysts for Ethanol Steam Reforming Reaction.
Tamara Siqueira Moraes[1], Victor Buratto Tinti[2], Daniel Zanetti de Florio[2] and Fabio Coral Fonseca[1], *(1)Instituto de Pesquisas Energéticas e Nucleares, Brazil, (2)Universidade Federal do ABC, Brazil*.

Effect of Silica Encapsulation on Cobalt-Based Catalysts for Fischer-Tropsch Synthesis
Juliana Smarzaro[1], Maria Baldanza[1], Antonio Almeida[1], Alexander Caytuero[2], Vera Salim[1], Fabio B. Passos[2] and Victor Teixeira da Silva[3], *(1)Universidade Federal do Rio de Janeiro (UFRJ), Brazil, (2)Universidade Federal Fluminense, Brazil, (3)Federal University of Rio de Janeiro, Brazil*.

The Nature of the Active Sites in the Hydrogenation of CO_2 to Methanol over Pd-Ga Catalysts
Alejandro Karelovic, *Universidad de Concepcion, Chile*.

Wet-Chemistry Strong Metal-Support Interactions in Titania Supported Au Catalysts
Liang Wang, Jian Zhang and F.-S. Xiao, *Zhejiang University, China*.

Catalytic Behavior of a Keggin Polyoxometalate/Bipyridine Hybrid in the Epoxidation of Olefins
Gabriel Hidalgo, Koen Robeyns, Michel Devillers and Eric Gaigneaux, *Université Catholique de Louvain, Belgium*.

Searching for the Active Sites in Cu-Zeolites Responsible for the Direct Conversion of Methane to Methanol
Karoline Kvande[1], Dimitrios K. Pappas[1], Elisa Borfecchia[2], Kirill Lomachenko[3], Matteo Signorile[4], Gloria Berlier[2], Silvia Bordiga[2], Unni Olsbye[1], Pablo Beato[5] and Stian Svelle[1], *(1)University of Oslo, Norway, (2)University of Turin, Italy, (3)European Synchrotron Radiation Facility, France, (4)Università di Torino, Italy, (5)Haldor Topsøe A/S, Denmark*.

Exploring Local Structures and Optical Properties of Mixed Metal Oxide Interfaces in TiO_2/CeO_{2-X} Photocatalysts
Diane Haiber, Kartik Venkatraman, Piyush Haluai and Peter Crozier, *Arizona State University, USA*.

Effect of the Irradiation Time on Pt/C-TiO_2 Electrocatalysts
Martha L. Hernandez-Pichardo, Paz Del Angel, Rosa Gonzalez and Eduardo Cervantes, *Instituto Politécnico Nacional, Mexico*.

Fischer-Tropsch Synthesis: Performance of a 0.27%Ag-25%Co/Al_2O_3 Catalyst in a Large Fixed-Bed Reactor
Wenping Ma, Dennis E Sparks, Sandeep Badoga, Michela Martinelli, Gary Jacobs and Burtron Davis, *University of Kentucky, USA*.

Perovskites $LaNi_{1-X}Mn_xO_3$ As Catalysts for H_2 Production Via Catalytic Decomposition of CH_4
Heloisa Macedo, Rodolfo Medeiros, Angelo Oliveira, Fernando Maziviero and Dulce Melo, *Federal University of Rio Grande do Norte, Brazil*.

Nanojunction-Enhanced Microfluidic Platform for Selective Photoelectrochemical Oxidation
Zhenao Gu[1] and Xiaoqiang An[2], *(1)Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences, China, (2)School of Environment, Tsinghua University, China*.

Zirconium Promoter Effect on Catalytic Activity of Modified Silica Supported Pd Catalyst for Selective Hydrogenation of NBR
Bingqing Ge and Pei Yuan, *Fuzhou University, China*.

The Effect of Ag Chemical State on Ozone Decomposition of Ag-Mn Catalysts
Xiaotong Li[1], Jinzhu Ma[1] and Hong He[2], *(1)Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences, China, (2)University of Chinese Academy of Sciences, China*.

CeO_2 Wetting Layer on ZrO_2 Particle with Sharp Solid Interface As Highly Active and Stable Catalyst for HCl Oxidation Reaction
Yu Sun[1,2] and Yanglong Guo[2], *(1)Justus Liebig University, Germany, (2)East China University of Science and Technology, China*.

Atomically Dispersing Cu Dopant into the Ceria Surface Stabilized By La Doping to Design Highly Stable and Active Catalyst for CO Oxidation
Hyung Jun Kim, Dongjae Shin and Jeong Woo Han, *Pohang University of Science and Technology (POSTECH), Korea, Republic of (South)*.

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Catalytic Performance of Medium and Large Pores Zeolites in the Methanol-to-Olefins Reaction
Sungsik Park[1], Yoshihiro Kubota[2], Junko N. Kondo[1] and Toshiyuki Yokoi[3], *(1)Tokyo Institute of Technology, Japan, (2)Yokohama National University, Japan, (3)4259 Nagatsuta, Midori-ku, Japan*.

Oxidative Depolymerization of Lignin to Monophenolic Compounds
Ruoshui Ma[1], Sarah D. Burton[1], Eric D. Walter[1], Mariefel V. Olarte[1] and Xiao Zhang[1,2], *(1)Pacific Northwest National Laboratory, USA, (2)Washington State University, USA*.

Rapid and Selective Hydrogenation of Alkynes to Alkenes over a TiO_2 Photocatalyst Having Palladium Core-Copper Shell Co-Catalyst Nanoparticles
Hiroshi Kominami[1], Shota Imai[1], Kousuke Nakanishi[1] and Atsuhiro Tanaka[1,2], *(1)Kindai University, Japan, (2)Japan Science and Technology Agency (JST), Japan*.

Observation of an Oxonium Ion Intermediate in Ethanol Dehydration to Ethene on Zeolite
Chao Wang, Xue Zhou, Yueying Chu, Qiang Wang, Jun Xu and Feng Deng, *Wuhan Institute of Physics and Mathematics, CAS, China*.

Conversion of Ethanol to C5+ Ketones over Pd Promoted Mixed Oxide Catalyst
Karthikeyan Ramasamy[1], Mond Guo[1], Michel Gray[1], Libor Kovarik[1], Abraham Martinez[1], Tanmayi Bathena[2] and Konstantinos Goulas[2], *(1)Pacific Northwest National Laboratory, USA, (2)Oregon State University, USA*.

Hydrogen Production from Formic Acid Catalyzed By Dispersed Pt Nanoparticles with Polyvinylpyrrolidone
Yusuke Minami, Shusaku Ikeyama and Yutaka Amao, *Osaka City University, Japan*.

Defect-Rich Layered Perovskites for Selective Conversions of Nitric Oxide: Roles of Oxygen Defects, Selectivity and Mechanistic Insights
Reshalaiti Hailili, Hua Sheng, Chuncheng Chen, Hongwei Ji and Jincai Zhao, *Institute of Chemistry, Chinese Academy of Sciences, China*.

Melt Infiltration As an Efficient Approach to Control the Localization of Transition Metal(oxide) Nanoparticles in Porous Hosts
Carmen Ciotonea[1], Shuo Chen[1], Cezar Catrinescu[2], Adrian Ungureanu[2] and Sébastien Royer[1], *(1)Univ. Lille, CNRS, ENSCL, Centrale Lille, Univ. Artois, UMR 8181 - UCCS - Unité de Catalyse et Chimie du Solide, F-59000 Lille, France, France, (2)Gheorghe Asachi" Technical University of Iasi, Faculty of Chemical Engineering and Environmental Protection, Romania*.

Catalytic Manufacture of Aliphatic Diisocyanates without Phosgene
Youquan Deng, Shimin Liu and Peixue Wang, *Lanzhou Institute of Chemical Physics, Chinese Academy of Science, China*.

Bimetallic Ni-Mo/C Catalysts for HI Decomposition in the Iodine–Sulfur Thermochemical Water-Splitting Cycle for Hydrogen Production
Laijun WANG and Yanan LI, *Tsinghua University, China*.

Mechanistic Studies on Oxide-Catalyzed CO_2 Conversion Towards Rational Catalyst Design
Bin Qin[1], Shi-Ju Zhou[2], Zhi-Min Zhou[1] and Li Shenggang[1,2], *(1)Shanghai Advanced Research Institute, CAS,, China, (2)ShanghaiTech University, China*.

Metal-Organic Frameworks Stabilized Oxygen Vacancies in $BiVO_4$ Photoanode with High Activity and Stability for Water Splitting
Sheng Shen, *Hunan University, China*.

Dehydration Condensation of Amino Sugar Alcohol By Acid Catalysts
Takuya Sagawa, Hirokazu Kobayashi and Atsushi Fukuoka, *Hokkaido University, Japan*.

Selective Oxidation of Low Carbon Alkane Via Semiconductor Photocatalyst
Shuang-Feng Yin, *Hunan University, China*.

Understanding the Role of Cr Promotion and Brønsted Acidity of the Zeolite in Improved Activity of Mo/Hmcm-22 Catalyst for Methane Dehydroaromatization Reaction
Sourabh Mishra, Tuhin Suvra Khan, M. Ali Haider and Kamal K. Pant, *Indian Institute of Technology Delhi, India*.

Catalytic Removal of Gas Pollutants at Room Temperature
Jian Ji and Haibao Huang, *Sun Yat-sen University, China*.

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CO_2 Methanation over Ni-Bulk Catalysts Promoted with Rare Earth Elements
Phuoc Ho[1,2], Giancosimo Sanghez de Luna[1], Andrea Canciani[1], Saverio Angelucci[1], Wilm Jones[3,4], Nikolaos Dimitratos[1], Francesco Di Renzo[2], Stefania Albonetti[1], Giuseppe Fornasari[1], Angelo Vaccari[1], Andrew M. Beale[3,4] and Patricia Benito[1], *(1)University of Bologna, Italy, (2)Institut Charles Gerhardt, Ecole Nationale Supérieure de Chimie de Montpellier, France, (3)University College of London, United Kingdom, (4)Research Complex at Harwell, United Kingdom*.

Continuous Liquid-Phase Synthesis of Nickel Phosphide Nanoparticles in a Slug-Flow Microreactor
Donglin Li[1], Jianwen Zhang[1], Jingjing Chen[1], Jie Liu[1], Huidong Zheng[1], Zuoyi Yan[1] and Ted Oyama[1,2,3], *(1)Fuzhou University, China, (2)Virginia Tech, USA, (3)The University of Tokyo, Japan*.

FeMoOx/SiO_2 Catalysts Prepared By Sol-Gel Methods: A Comparative Study between Methane and Methanol Partial Oxidation
Benjamin Solsona[1], William G. Cortés Ortiz[2,3], Carlos Alberto Guerrero Fajardo[2], Daniel Delgado[4] and Jose M. Lopez Nieto[5], *(1)UNIVERSITAT DE VALENCIA, Spain, (2)Universidad Nacional de Colombia, Colombia, (3)Universidad El Bosque, Colombia, (4)CSIC-UPV, Spain, (5)CSIC, Spain*.

Insight into Electrolyte and Ion Effects in Carbon Dioxide Reduction Electrocatalysis
Thomas Ludwig[1,2], Karen Chan[2] and Jens K. Nørskov[2], *(1)Stanford University, USA, (2)Technical University of Denmark, Denmark*.

One Catalyst, Two Reactions: Simultaneous Catalysis and Product Detection at Liquid/Liquid Interfaces
Jéssica Fonsaca, Valmir Silva, Leandro Hostert, Gilberto Abate, Elisa Orth and Aldo Zarbin, *Federal University of Paraná, Brazil*.

Insight into the Effect of Water on Ethene-to-Aromatics over HZSM-5
Huiqiu Wang and Weizhong Qian, *Tsinghua university, China*.

Novel Co-Based Catalysts for the Complete Oxidation of CH_4 and CO
Eleni Iliopoulou[1], Sofia Darda[1], Eleni Pachatouridou[1], Konstantinos Moularas[2] and Yiannis Deligiannakis[2], *(1)Centre for Research and Technology-Hellas (CERTH), Greece, (2)University of Ioannina, Greece*.

Synthesis of Z-Scheme Type Ag_2O/Ag/Graphene Oxide Composites As a Catalyst for Carbon Dioxide Photocatalytic Reaction
Jih-Mirn Jehng[1] and Yong-Ming Dai[2], *(1)National Chung Hsing University, Taiwan, (2)National Chin-Yi University of technology, Taiwan*.

Getting Insight into the NH_3-SCR Kinetics over Chlorinated V-Mo/Ti Catalysts By Activity and Characterisation Experiments
Aldo Lanza[1], Silvia Alcove Clave[2], Jillian Collier[2], Luca Lietti[1], Roberto Matarrese[1], Lei Zheng[3], Elisabetta Finocchio[4], Guido Busca[4] and Alessandra Beretta[1], *(1)Politecnico di Milano, Italy, (2)Johnson Matthey Technology Centre, United Kingdom, (3)Karlsruhe Institute of Technology (KIT), Germany, (4)University of Genova, Italy*.

A New Dual Site Catalyst Design Concept for Promoting Reaction Kinetics of the Oxygen Reduction Reaction
Xiaochen Shen[1], Tomoyuki Nagai[2], Feipeng Yang[3], Li Qin Zhou[2], Yanbo Pan[1], Libo Yao[1], Dezhen Wu[1], Yi-Sheng Liu[3], Jun Feng[3], Jinghua Guo[3], Hongfei Jia[2] and Zhenmeng Peng[1], *(1)The University of Akron, USA, (2)Toyota Motor North America, USA, (3)Lawrence Berkeley National Laboratory, USA*.

Impact of Nanoparticle–Support Interactions in Co_3O_4/Al_2O_3 Catalysts for the Preferential Oxidation of Carbon Monoxide
Thulani Nyathi[1], Nico Fischer[1], Andrew York[2], David Morgan[3], Graham J. Hutchings[4], Emma Gibson[2], Peter Wells[5], C. Richard A. Catlow[6] and Michael Claeys[1], *(1)Catalysis Institute and c*change (DST-NRF Centre of Excellence in Catalysis), University of Cape Town, South Africa, (2)Johnson Matthey Technology Centre, United Kingdom, (3)Cardiff Catalysis Institute, Cardiff University, United Kingdom, (4)Cardiff University, United Kingdom, (5)University of Southampton, United Kingdom, (6)UK Catalysis Hub, United Kingdom*.

Atomically Precise Gold Cluster Catalysts for Direct Epoxidation of Propylene
Nidhi Kapil[1], Fabio Cardinale[1], Tobias Weissenberger[1], Michael M. Nigra[2] and Marc-Olivier Coppens[1], *(1)University College London, United Kingdom, (2)University of Utah, USA*.

Synthetic Mayenites for the Catalytic Oxidation of Cl-VOCs in Atmospheric Emissions
Joaquin Martinez-Triguero[1] and Federico Rossi[2], *(1)Universitat Politècnica de València-CSIC, Spain, (2)University of Siena, Italy*.

ZSM-5/MCM-41 Composites for the Catalytic Fast Pyrolysis of Biomass: Effects of ZSM-5 Composition on the Product Distribution
Lei Yu[1], Ioulia Valla[1], Azeem Farinmade[2], Oluwole Ajumobi[2] and Vijay John[2], *(1)University of Connecticut, USA, (2)Tulane University, USA*.

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The Oxygen Vacancies-CUS Pairs Role in the Chemicals and Fuels Generation from CO_2 and Ethanol
Priscila da Costa Zonetti[1], Luciano H. Chagas[1], Oliver Espino[1,2], Aryane Azevedo Marciniak[3], Leydi del R. Silva-Calpa[4], Adriana F. F. L. Araujo[1,5], Bruna J.S. Bronsato[1,2], Claudio José de Araújo Mota[3], Roberto R. de Avillez[2], Odivaldo C. Alves[6] and Lucia Gorenstin Appel[1], *(1)Instituto Nacional de Tecnologia, Brazil, (2)Pontifícia Universidade Católica do Rio de Janeiro, Brazil, (3)Universidade Federal do Rio de Janeiro, Brazil, (4)universidade Federal do Rio de Janeiro, Brazil, (5)Universidade do Estado do Rio de Janeiro, Brazil, (6)Universidade Federal Fluminense, Brazil*.

Experimental and Modelling Study of the Oxidation State of Co-Based Catalysts Under Methane Dry Reforming Conditions
Lubow Maier, *Karlsruhe Institute of Technology, Germany*.

Catalytic Total Oxidation of Methane – Understanding the Water Inhibition Effect
Kevin Keller, Patrick Lott, Henning Stotz and Olaf Deutschmann, *Karlsruhe Institute of Technology (KIT), Germany*.

Critical Importance of High Pressure and High Selectivity for a Successful Oxidative Coupling of Methane (OCM) Process
Madan Bhasin, *Innovative Catalytic Solutions, LLC, USA*.

Catalytic Oxidation of VOCs Mixture on Co Based Mixed Oxide.
Guillaume Rochard, Rebecca El-Khawaja, Christophe Poupin, Stéphane Siffert and Renaud Cousin, *UCEIV/ULCO, France*.

Using Atomically Dispersed Copper on Mixed Oxide Catalyst to Selectively Couple Ethanol to Higher Alcohols
Mond Guo[1,2], Senthil Subramaniam[2], Michel Gray[2], Libor Kovarik[2] and Karthikeyan Ramasamy[2], *(1)Washington State University, USA, (2)Pacific Northwest National Laboratory, USA*.

The Electrostatic Adsorption of Pd over Metal-Doped KIT-5 and KIT-6
Anhua Dong[1], John Meynard Tengco[1], Anand Ramanathan[2] and John R. Regalbuto[1], *(1)University of South Carolina, USA, (2)University of Kansas, USA*.

Novel Separations for Improved Catalytic Upgrading of Hydrothermal Liquefaction and Fast Pyrolysis Bio-Oil
Mi Lu[1], Huamin Wang[2] and Michael Hu[1], *(1)Oak Ridge National Laboratory, USA, (2)Pacific Northwest National Laboratory, USA*.

Efficient Microwave Assisted Catalytic Synthesis of HMF Using Metal Functionalized Graphene Oxide Hybrid Catalysts
Jorge Beltramini[1,2], Shinya Hayami[1], Yui Hirano[1] and Hitomi Ohmagari[1], *(1)Kumamoto University, Japan, (2)Queensland University of Technology, Australia*.

Kinetic Analysis of Electrochemical Hydrogenation and Hydrogenolysis of Furfural on Copper
Andrew May and Elizabeth J. Biddinger, *The City College of New York, CUNY, USA*.

Elucidation of Methanol Adsorption Sites over Cu and Cu-Pt Clusters Supported on CeO_2 (111): A DFT and DRIFTS Study
Fernando Buendía, Daniel G. Araiza, Luis Rodriguez, Lauro Oliver Paz-Borbon and Gabriela Díaz, *National Autonomous University of Mexico (UNAM), The Institute of Physics, Mexico*.

Catalytic Performance of Metallic or Bimetallic Clusters Confined in Dielectric Cages of Zeolite
Zhang Zhiyang[1], Gu Jing[1] and Weiping Ding[2], *(1)nanjing university, China, (2)Nanjing University, China*.

Property-Activity Relations for Methane Activation By Dual-Metal Binuclear Cu–Oxo Active Sites in ZSM-5 Zeolite
Zhi Li, Weiyu Song and Zhen Zhao, *China University of Petroleum, China*.

Selective Synthesis of Amine and Imine Via Nitrile Hydrogenation Under Ambient Conditions over Metal Nanoparticle Catalysts
Yoshihide Nishida[1], Katsutoshi Sato[1,2] and Katsutoshi Nagaoka[1], *(1)Nagoya University, Japan, (2)ESICB, Kyoto University, Japan*.

Observation, Identification and Manipulation of Active Structures: From the Temperature-Specific Active Sites on Platinum Nanoparticles for CO Oxidation
Annai Liu, Fei Gao and Lin Dong, *Nanjing University, China*.

Liquid Fuel Production By CO_2 Hydrogenation - Bi-Functional Catalysts
Eun Cheol Ra and Jae sung Lee, *Ulsan National Institute of Science and Technology(UNIST), Korea, Republic of (South)*.

Higher Alcohols Synthesis from Syngas over Cu-Fe Catalyst: *In Situ* Characterization and Structure-Activity Relationship
Yongwu Lu, Liangshu Zhong and Yuhan Sun, *Shanghai Advanced Research Institute, Chinese Academy of Sciences, China*.

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Aqueous Phase Hydrodechlorination of Trichloroethylene Using Pd Supported on Swellable Organically Modified Silica (SOMS): Role of Swellability of SOMS
Saurabh Ailawar[1], Anagha Hunoor[1], Benjamin Rudzinski[1], Paul Edmiston[2] and Umit S. Ozkan[1], *(1)The Ohio State University, USA, (2)The College of Wooster, USA*.

Effect of Non-Innocent Residual Formate on the Structure and Redox Behaviors of Single-Site Copper(II) Supported By Metal–Organic Framework NU-1000
Ying Yang, Xuan Zhang, Zhiyong Lu, Hyunho Noh, Zoha Syed and Joseph T. Hupp, *Northwestern University, USA*.

Understanding Fundamentals of Mass Transport in Electrocatalytic Transformations to Control Product Selectivity
Carlos G. Morales-Guio, *University of California, Los Angeles, USA*.

Synthesis of Supported Pd Nanocluster Catalyst By Spontaneous Reduction on Layered Double Hydroxide
Haiping Li, Dianqing Li and Yufei He, *Beijing University of Chemical Technology, China*.

Electroconversion of Biomass-Derived Polyols Using Platinum Nanoparticle Catalysts
Dohyung Kim[1], Chengshuang Zhou[1], Miao Zhang[2] and Matteo Cargnello[1], *(1)Stanford University, USA, (2)Lawrence Berkeley National Laboratory, USA*.

Synthesis of High-Dimensionally Structured Mo and W Oxide
Kosuke Shimoda, Satoshi Ishikawa and Wataru Ueda, *Kanagawa University, Japan*.

Revealing the Competitive Adsorption and Kinetic Behaviors of Multicomponent Contaminants over OMS-2 Catalyst
Ganggang Li[1,2], Yonggang Sun[3] and Zhengping Hao[1,2], *(1)University of Chinese Academy of Sciences, China, (2)Chinese Academy of Sciences, China, (3)Ningxia University, China*.

Design of Metal Nanoparticle Catalysts for Selective Dehydrogenative Conversion of Amines to Amides
Tomohiro Yabe, Takashi Oyama, Takafumi Yatabe, Noritaka Mizuno and Kazuya Yamaguchi, *The University of Tokyo, Japan*.

Experimentation, Kinetic Modeling, Reactor Design and Analysis for Acetic Acid Hydrogenation to Ethanol Conversion
Pranab Kumar Rakshit[1,2], Shailesh Pathak[1], Ravi Kumar V[2] and Sreedevi Upadhyayula[1], *(1)Indian Institute of Technology Delhi, India, (2)Bharat Petroleum Corporation Ltd, India*.

Highly Selective Sodium Tungstate-CrO_x Catalyst for Propane Dehydrogenation to Propylene in Circulating Fluidized-Bed
Hawon Park, Changyeol Song, Yi Won Kim, Eun Sang Kim, Won Choon Choi, Yong-Ki Park and Dae Sung Park, *Korea Research Institute of Chemical Technology, Korea, Republic of (South)*.

Kinetic Role of Water on the Evolution of Extra Framework Al Sites and Their Influence on Alkane Cracking
Tram Pham[1], Han Chau[1], Vy Nguyen[1], Bin Wang[1], Jeffery White[2] and Steven Crossley[1], *(1)University of Oklahoma, USA, (2)Oklahoma State University, USA*.

Microkinetic Modeling Strategy Considering Topologic Aspect of a Cu Catalytic Surface Based on Kinetic Monte-Carlo
Jiyeong Cho[1] and Myung-June Park[2], *(1)Seoul National University, Korea, Republic of (South), (2)Ajou University, Korea, Republic of (South)*.

Dehydration of Isobutanol to Isobutylene As an Alternative C_4 Source for Methyl Methacrylate Process
Wataru Ninomiya, Tatsuya Suzuki, Akio Takeda and Hiroyuki Naito, *Mitsubishi Chemical Corporation, Japan*.

New Insight into SO_2 Poisoning of Different M-WO_3/TiO_2 (M=V, Ce, Fe, Mn, Cu) Catalysts for Low-Temperature NH_3-SCR
Huazhen Chang and Yazhou Wang, *Renmin University of China, China*.

Self-Supporting Electrodes of Mo_2C on 3D-Hierarchical Porous Carbon Monoliths for Large-Scale Hydrogen Generation
Haiyang Lu[1] and Yi Tang[2], *(1)Fudan University, China, (2)Shanghai Key Laboratory of Molecular Catalysis and Innovative Materials and Laboratory of Advanced Materials, Fudan University, China*.

Preparation of Ru-V Catalyst from a Hybrid Cluster: Application to *N*-Alkylation of Amines with Alcohols
Shun Hayashi[1] and Tetsuya Shishido[1,2], *(1)Tokyo Metropolitan University, Japan, (2)Kyoto Univrersity, Japan*.

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***In Situ* Control of d-Band Structure in Supported Metal Catalyst for CO Oxidation**
Kyung Rok Lee[1], Danim Yun[2], Chyan Kyung Song[1], Younhwa Kim[1], Jungwon Park[1] and Jongheop Yi[1], *(1)Seoul National University, Korea, Republic of (South), (2)University of Illinois at Urbana-Champaign, USA*.

Zeolite Catalyzed Substitution of the Hydroxy Group in Allyl Alcohols with Nucleophiles
Akimichi Ohtsuki, Shunsuke Aoki, Sachiko Morita and Kazu Okumura, *Kogakuin Univresity, Japan*.

H_2S selective Catalytic Oxidation Performance over La_2FeMO_6 (M=Mn, Co, V, Mo) Double Perovskite Oxides Catalysts
Fenglian Zhang and Xin Zhang, *University of Chinese Academy of Sciences, China*.

Catalytic Behavior of Boron-Based Catalysts for Oxidative Dehydrogenation of Light Alkanes
Mehran Sajad and Roman Bulanek, *University of Pardubice, Czech Republic*.

Catalysts with Bimodal Pore Structure Prepared By Sedimentation of Mesoporous Silica-Alumina Spheres and Reinforcement with Silica
Masaki Okamoto, *Keio University, Japan*.

Investigation of Bifunctional Metal Loaded Zeolite Catalyst Structure for Low Temperature Cracking of *N*-Hexane
Hiroyasu Fujitsuka, Mai Yamaji, Takashi Yunoue and Teruoki Tago, *Tokyo Institute of Technology, Japan*.

Hydrogenation of Furfural over Supported Ni-Based Catalysts
Priscilla de Souza[1], Fábio Noronha[2], Robert Wojcieszak[3] and Sébastien Paul[3,4], *(1)Universidade Federal do Rio de Janeiro, Brazil, (2)National Institute of Technology, Brazil, (3)Centre National de la Recherche Scientifique (CNRS), France, (4)3Univ. Lille, CNRS, Centrale Lille, ENSCL, Univ. Artois, UMR 8181 - UCCS -, France*.

Controlled Desilication Method for Synthesizing Hierarchically Porous SSZ-13 Zeolite and SAPO-34
Rino Mukti and Grandprix Kadja, *Institut Teknologi Bandung, Indonesia*.

Graphene-Supported 2D Cobalt Oxides for Energy Applications
Loïc Michel, Sécou Sall, Antoine Demange, Cerise Robert and Valérie CAPS, *CNRS / University of Strasbourg, France*.

Effects of Ceria-Based Catalysts on Imines Synthesis in Mild Conditions
Chen Wu and Hepeng Zhang, *Northwestern Polytechinical University, China*.

Entropic Effects and Active Site Dynamics in Methane Partial Oxidation over Cu-Zeolites
Elena Khramenkova, Guanna Li and Evgeny Pidko, *Delft University of Technology, Netherlands*.

Design of Ag/CeO_2 and $Ag\text{-}CeO_2/SiO_2$ Catalysts for VOCs Oxidation and Room-Temperature p-Nitrophenol Reduction
Natalia Mikheeva[1], Maria Chernykh[1], Alexey Taratayko[1], Maria Grabchenko[1], Yurii Larichev[2], Vladimir Zakovskii[2] and Grigory Mamontov[1], *(1)Tomsk State University, Russian Federation, (2)Boreskov Institute of Catalysis, Russian Federation*.

Oxidation of Ceria By Hydrogen with Ce-H Formation and Its Effect for C_2H_2 Selective Hydrogenation Reaction
Zhaorui Li[1], Kristin Werner[2], Kun Qian[1], Rui You[1] and Weixin Huang[1], *(1)University of Science and Technology of China, China, (2)Fritz-Haber-Institut der MPG, Germany*.

Highly Active and Stable Ru/Pr_2O_3 Catalyst for Production of CO_x-Free Hydrogen Via Ammonia Decomposition
Xilun Zhang[1,2], Lin Liu[1] and Ping Chen[1], *(1)Dalian Institute of Chemical Physics, Chinese Academy of Sciences, China, (2)University of Chinese Academy of Sciences, China*.

The Design of Mn-Containing Oxide Nanocrystalline Catalysts for the Oxidation of CO: Synthesis, Structure and Reactivity
Olga Bulavchenko, *Boreskov Institute of Catalysis, Russian Federation; Novosibirsk state university, Russian Federation*.

One-Pot Synthesis of Fe-Beta Zeolite and the Catalytic Properties in Selective Oxidation of Methane with H_2O_2
Peipei Xiao[1] and Toshiyuki Yokoi[1,2], *(1)Tokyo Institute of Technology, Japan, (2)Japan Science and Technology Agency, Japan*.

Facet-Engineered Cuprous Oxide with Dominant {100} and {110} Facets.
Cui Ying Toe[1], Jason Scott[1], Rose Amal[1] and Yun Hau Ng[2], *(1)The University of New South Wales, Australia, (2)City University of Hong Kong, Hong Kong*.

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Development of Cerium-Zirconium Composite Oxide Supported Ruthenium Catalyst for CO_2 Methanation
Katsutoshi Sato[1], Taichi Yamaguchi[2] and Katsutoshi Nagaoka[3], *(1)ESICB, Kyoto University, Japan, (2)Oita University, Japan, (3)Nagoya University, Japan*.

The Effect of Zeolitic Architecture on Methane Dehydro-Aromatization
Hao Ma, Chaoqun Zhou, Xun Kuang, Zhongyue Zhou and Fei Qi, *Shanghai Jiao Tong University, China*.

Fabrication of Stable Catalyst System for Dry Reforming of Methane
Ji Hoon Park, Sunil Kwon, Iljeong Heo and Tae Sun Chang, *Korea Research Institute of Chemical Technology, Korea, Republic of (South)*.

Butadiene Production By 1,3-Butanediol Dehydration. Study of Catalyst Deactivation
Andrea C. Rodriguez[1], Maria E. Sad[1], Mehrad Tarighi[2], Ludovic Pinard[2] and Cristina L. Padró[1], *(1)Universidad Nacional del Litoral, Argentina, (2)IC2MP, Institute of Chemistry of Poitiers: Materials and Natural Resources/University of Poitiers, France*.

Efficient Electrochemical CO_2-RR over Surface-Deficient CuO Catalyst
Han Zhao, Rong-Guang Wu and Chung-Yuan Mou, *National Taiwan University, Taiwan*.

Excellent Activity and Selectivity of One-Pot Synthesized Cu-SSZ-13 Catalyst in the Selective Catalytic Oxidation of Ammonia to Nitrogen
Tao Zhang, *Renmin University of China, China*.

Upgraded Zeolites For Catalyzing the Isomerization of Conjugated Double Bonds in Muconic Acid and Esters
Ibrahim Khalil and Michiel Dusselier, *KU Leuven, Belgium*.

Photocatalytic Water Splitting over Ionic Liquid Coated Pt/$SrTiO_3$
Elif CAN and Ramazan Yildirim, *BOGAZICI UNIVERSITY, Turkey*.

Aging of Diesel Oxidation Catalysts: Hydrothermal Vs Chemical Effects
Miren Agote Aran[1], Davide Ferri[1], Frank Krumeich[2] and Chiara Coffano[3], *(1)Paul Scherrer Institut, Switzerland, (2)ETH Zürich, Switzerland, (3)Politecnico di Milano, Italy*.

Effective Dehydroxylation of Phenols on Mesoporous TiO_2-Supported Molybdenum Oxide
Haryo Pandu Winoto[1], Cheolwoo Park[2], Young-Kwon Park[3] and Jungho Jae[2], *(1)Korea Institute of Sciencen and Technology, Korea, Republic of (South), (2)Pusan National University, Korea, Republic of (South), (3)University of Seoul, Korea, Republic of (South)*.

Crowded Hydronium Ions in H-MFI Zeolite for Dehydration Reaction
Yue Liu, Qiang Liu, Sebastian Eckstein, Lara Milakovic, Hui Shi, Eszter Barath and Johannes A. Lercher, *Technical University of Munich, Germany*.

Oxo-Vanadium Complex-Anchored Ordered Mesoporous Silica: Potential UV-Visible Light Harvesting Material for Photocatalytic Reaction
Parasuraman Selvam, *Indian Institute of Technology-Madras, India*.

Structure/Performance Correlation of Fe Catalyst for CO_2 Electrochemical Reduction Revealed By Operando Spectroscopy
Diego Gianolio[1], Giannantonio Cibin[1] and Rosa Arrigo[1,2], *(1)Diamond Light Source, United Kingdom, (2)University of Salford, United Kingdom*.

Tungstenocene-Grafted Silica Catalysts for the Selective Epoxidation of Alkenes
Chiara Bisio[1,2], Fabio Carniato[1], Alessandro Gallo[3], Rinaldo Psaro[4] and Matteo Guidotti[2], *(1)University of Eastern Piedmont, Italy, (2)CNR-SCITEC, Italy, (3)SLAC National Accelerator Laboratory, USA, (4)CNR - SCITEC, Italy*.

Nanometals-Decorated Electrospun Polymeric Membranes As Catalytic Systems for Selective Oxidation in Liquid Phase.
Alessandro Allegri, Danilo Bonincontro, Alice Lolli, Laura Mazzocchetti, Emanuele Maccaferri, Loris Giorgini, Andrea Zucchelli, Chiara Gualandi, Maria Letizia Focarete and Stefania Albonetti, *University of Bologna, Italy*.

Lanthanum Cobaltites Partially Substituted By Ca and Sr to be Used As Catalysts in the Conversion of Succinic Acid
Gabriel Bernales Medina[1] and Gina Pecchi[2], *(1)University of Concepcion, Chile, (2)Universidad de Concepcion, Chile*.

Machine Learning Based Quantitative Tracking of Supported Catalytic Nanoparticles Studied By in Situ Environmental Transmission Electron Microscopy
Khuram Faraz[1], Thomas Grenier[1], Christophe Ducottet[1] and Thierry Epicier[2], *(1)Univ Lyon, UJM Saint-Etienne, France, (2)Univ Lyon, INSA-Lyon, France*.

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Hydrodeoxygenation of Levulinic Acid Dimers on a Pt/ZrO_2 Catalyst
Eveliina Mäkelä[1,2], Jose Luis Gonzalez Escobedo[2], Reetta Karinen[2], Marja Tiitta[1], Riikka L. Puurunen[2] and Marina Lindblad[1], *(1)Neste Corporation, Finland, (2)Aalto University, Finland*.

The CoO-C_3N_4 hybrid Material-an Unexpected Catalytic Active Component in Fischer-Tropsch Synthesis Reaction
Yichi Zhang, Yue Su and Haiquan Su, *Inner Mongolia University, China*.

Enhanced Low Temperature Activity of CO-SCR over Ir-Ru Bimetallic Catalyst
Young Woo You[1,2], Soo Min Kim[1], Seok Ki Kim[1], Hyunjoo Lee[2] and Iljeong Heo[1], *(1)Korea Research Institute of Chemical Technology, Korea, Republic of (South), (2)Korea Advanced Institute of Science and Technology, Korea, Republic of (South)*.

Direct Conversion of Syngas to Dimethyl Ether over Silica-Modified Cu-ZnO Catalysts
Hiroyuki Imai, Kazusa Terasaka and Xiaohong Li, *The University of Kitakyushu, Japan*.

One-Pot Synthesis of Mesoporous Ni/Mg-Aluminate Catalyst with High Activity and Coke Resistance for Steam Methane Reforming
Hyunjung Kim[1], Hong Jin Lee[1], Jeong-Cheol Seo[2] and Kyubock Lee[1], *(1)Chungnam National University, Korea, Republic of (South), (2)Korea Advanced Institute of Science and Technology, Korea, Republic of (South)*.

In-Operando Surface-Sensitive Probing of Electrochemical Reactions on Non-Model Nanoparticle Electrocatalysts: Spectroscopic Characterization of Reaction Intermediates and Elementary Steps of Oxygen Reduction Reaction on Pt
Sean Dix and Suljo Linic, *University of Michigan, USA*.

Pd Single-Atom Sites for Allylic Alcohol Selective Oxidation
Christopher Parlett[1,2], Aleksasndra Ziarko[3], Mark Isaacs[4] and Thomas Slatter[2], *(1)University of Manchester, United Kingdom, (2)Diamond Light Source, United Kingdom, (3)Aston University, United Kingdom, (4)University College London, United Kingdom*.

A Periodic DFT Study of the Synergistic Mechanisms between Extra-Framework Aluminum Species and Brønsted Acid Sites in HY Zeolites
Jian Zheng[1], Yucai Qin[2] and Lijuan Song[3], *(1)China University of Petroleum (East China), China, (2)Key Laboratory of Petrochemical Catalytic Science and Technology, Liaoning ShiHua University, Fushun 113001, Liaoning Province, P. R. China, China, (3)College of Chemistry and Chemical Engineering, China University of Petroleum (East China), Qingdao 266555, Shandong Province, P. R. China, China*.

Tailoring the Hierarchically Porous Mor Via Sequential Acid-Base Treatment
Grandprix Kadja and Rino Mukti, *Institut Teknologi Bandung, Indonesia*.

Mo-V-WO_3/TiO_2 Oxidehydration of Fructose to 2,5-Furandicarboxylic Acid in µ-Fluidized Bed Reactor
Adrien D'Oliveira[1], Zahra Khani[1] and Gregory S. Patience[2], *(1)Ecole Polytechnique Montreal, Canada, (2)Ecole Polytechnique de Montréal, Canada*.

Catalysing the Hydrocracking of Post-Consumer Polyolefins
Abdulrahman Bin Jumah[1] and Arthur Garforth[2], *(1)University of Manchester, United Kingdom, (2)The University of Manchester, United Kingdom*.

Detailed Kinetics of CO and CO_2 Methanation over Ni
Daniel Schmider, Lubow Maier and Olaf Deutschmann, *Karlsruhe Institute of Technology, Germany*.

Double B-Site Perovskites in Propane Oxidation
Giulia Bellini[1], Frank Girgsdies[1], Spencer James Carey[1], Thomas Götsch[1], Peter Kraus[1], Robert Schlögl[1,2] and Annette Trunschke[1], *(1)Fritz-Haber-Institut der Max-Planck-Gesellschaft, Germany, (2)Max-Planck-Institute for Chemical Energy Conversion, Germany*.

Stable Catalyst Against Coking in Dry Reforming of Methane By Irradiating Light
Yohei Cho[1], Akira Yamaguchi[1], Takeshi Fujita[2], Hideki Abe[3] and Masahiro Miyauchi[1], *(1)Tokyo Institute of Technology, Japan, (2)Kochi University of Technology, Japan, (3)National Institute for Materials Science, Japan*.

The Effect of Platinum Deposition on Co/SiO_2 for the Fischer-Tropsch Reaction
Sandeeran Govender and Eric van Steen, *University of Cape Town, South Africa*.

A Study of Intermediates for Syngas to Aromatics
Yi Ji and Guangjin Hou, *Dalian Institute of Chemical Physics, Chinese Academy of Sciences, China*.

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Nutrient Recovery from Spent Nitrate Ion-Exchange Brines through Catalytic Denitrification over Rh-Based Catalysts
Chelsea A. Clark[1,2], C. Prakash Reddy[2], Austin Fehr[2], Kimberly Heck[1,2], Aditya D. Mohite[2], Thomas Senftle[2] and Michael S. Wong[1,2], *(1)Nanotechnology Enabled Water Treatment (NEWT) Center, USA, (2)Rice University, USA*.

Precious Metals on Titania As Catalysts for Solar Fuels
James Hayward and Michael Bowker, *Cardiff University, United Kingdom*.

Alternative Catalyst Supports and Reactor Configuration for the Intensification of Exhaust Aftertreatment Converters
Mauro Bracconi, Matteo Ambrosetti, Tommaso Selleri, Matteo Maestri, Gianpiero Groppi and Enrico Tronconi, *Politecnico di Milano, Italy*.

***Amptorch*: Accelerating Molecular Dynamics Simulations with a Physics-Coupled Machine Learning Model**
Muhammed Shuaibi and Zachary Ulissi, *Carnegie Mellon University, USA*.

3D Printing of Structured Materials for Catalysis
Jasper Lefevere, *VITO, Belgium*.

Operando XAFS Observation of Cobalt Catalysts for Water Splitting Using Hard, Tender, and Soft X-Rays
Kanta Yamada and Masaaki Yoshida, *Yamaguchi University, Japan*.

Significance of Solvation on Pd Catalyzed C=O Bond Hydrogenation
Guanhua Cheng[1], Erika Ember[1], Oliver Y. Gutierrez[2], Andreas Jentys[1], Yue Liu[1], Ya-Huei (Cathy) Chin[3] and Johannes Lercher[1,2], *(1)Technical University of Munich, Germany, (2)Pacific Northwest National Laboratory, USA, (3)University of Toronto, Canada*.

Catalytic Aspects of CO_2 Adsorption and in Situ Reduction to CH_4
Alessandro Porta[1], Lidia Castoldi[1], Roberto Matarrese[1], Carlo Giorgio Visconti[1], Chae Woon Jeong[2], Robert J. Farrauto[2] and Luca Lietti[1], *(1)Politecnico di Milano, Italy, (2)Columbia University, USA*.

Understanding CO Oxidation on Bimetallic Au-Ir Clusters Supported on Anatase TiO_2(101): A DFT Study
Fernando Buendía, Dario Romero, Jorge Fábila and Lauro Oliver Paz-Borbon, *INSTITUTO DE FISICA UNAM, Mexico*.

Fine Tuning the Heterostructured Interfaces By Topological Transformation of Layered Double Hydroxide Nanosheets
Yufei Zhao, *Beijing University of Chemical Technology, China*.

CO_2 Hydrogenation to Light Olefins over Carbon Nanosphere (CNS) Encapsulated Metal Core-Shell Catalysts
Cheng Zhang[1], Laura Bogen[1], Luyun Jiao[1] and Sanjaya Senanayake[2], *(1)Long Island University (Post), USA, (2)Brookhaven National Laboratory, USA*.

Indium (Hydroxy)Oxide Films on Platinum Nanoparticles for CO Electrooxidation
Jeffrey Lowe, Christina Li and Jeffrey Greeley, *Purdue University, USA*.

Polar Surface Structure of Oxide Nanocrystals Revealed with Solid-State NMR Spectroscopy
Luming Peng, *Nanjing University, China*.

Biomimetic Catalyst System for Methane Oxidation at Room Temperature
Eun Duck Park and Jong Kyu Kang, *Ajou University, Korea, Republic of (South)*.

Kinetics of Vanadium Incorporation in Siliceous Beta Zeolite with Formation of V-Single Site Zeolite Catalysts for Application in SCR of NO
Rafal Baran[1,2], Yannick Millot[3,4], Frederic Averseng[3,4] and Stanislaw Dzwigaj[3], *(1)Sorbonne Universités, UPMC Univ Paris 06, UMR 7197, Laboratoire de Réactivité de Surface,, France, (2)AGH University of Science and Technology, Poland, (3)Sorbonne Université - CNRS, France, (4)Laboratoire de Réactivité de Surface, Sorbonne Université-CNRS UMR 7197, France*.

Understanding the NH_3-SCR Mechanism over Cu-SSZ-39
Jinpeng Du[1], Yulong Shan[1], Xiaoyan Shi[1], Guangyan Xu[1], Yan Zhang[2], Wenpo Shan[2], Yunbo Yu[1] and Hong He[1,2,3], *(1)Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences, China, (2)Institute of Urban Environment, Chinese Academy of Sciences, China, (3)State Key Joint Laboratory of Environment Simulation and Pollution Control, Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences, China*.

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Performance Analysis of Catalysts for Selective Production of Cinnamic Aldehyde
Chhavi Gupta and Sanjay M. Mahajani, *Indian Institute of Technology Bombay, India*.

Effect of Zeolite Dealumination on Remarkable Activity of Ni-BEA in the Low Temperatures Dry Reforming of Methane
Pavlo Kyriienko[1], Sergiy Soloviev[2], Ivan Remezovskyi[1] and Stanislaw Dzwigaj[3], *(1)L.V. Pysarzhevsky Institute of Physical Chemistry, National Academy of Sciences of Ukraine, Ukraine, (2)L.V.Pisarzhevsky Institute of Physical Chemistry of the NAS of Ukraine, Ukraine, (3)Sorbonne Université - CNRS, France*.

Density Functional Theory Calculations on Novel Cobalt Sulfide Catalysts for Ethylene Methoxy-Carbonylation to Methyl Propionate
Paulami Majumdar, Beata A. Kilos-Reaume and David G. Barton, *Dow, USA*.

Impact of Synthesis Method on Activity of Ni-Containing BEA Catalysts in High Temperature Conversion of Lignocellulosic Biomass
Jacek Grams[1], Robert Ryczkowski[1], Renata Sadek[2], Karolina Chalupka[2], Sandra Casale[3] and Stanislaw Dzwigaj[4], *(1)1 Institute of General and Ecological Chemistry, Faculty of Chemistry, Lodz University of Technology, Poland, (2)Lodz University of Technology, Poland, (3)University of Pierre and Marie Curie, France, (4)Sorbonne Université - CNRS, France*.

In-Situ Study of Oxidation-Reduction Behavior of Rh/Al_2O_3 Three-Way Automotive Catalysts Using Environmental Transmission Electron Microscopy (ETEM)
Cheng-Han Li[1], Jason Wu[2] and Joerg R. Jinschek[1], *(1)The Ohio State University, USA, (2)Ford Motor Company, USA*.

Effect of Promoter and Support on the Performance of Iron-Based High Temperature Fischer-Tropsch Synthesis
Yang He, Yajing Chang, Sreya Seby, Babu Joseph and John N. Kuhn, *University of South Florida, USA*.

Sulfidation of $Ni/Mo-Al_2O_3$ Catalyst
Sara Blomberg[1], Dorotea Gajdek[2], Linnéa Kollberg[3], Lucy Ajakaiye Jensen[1], Hanna Karlsson[1], Lindsay Merte[2] and Christian Hulteberg[1], *(1)Lund University, Sweden, (2)Malmö University, Sweden, (3)SunCarbon AB, Sweden*.

Two-Step Thermocatalytic Water Splitting Using $Ce_{0.5}Zr_{0.5}O_2$ Catalyst: Morphology Effects
Ranga Rao Gangavarapu, *Indian Institute of Technology Madras, India*.

Synergistic Application of XPS and DFT to Investigate Transition Metal Oxide Catalysts
Katherine Hassan-Legault and Samir Mushrif, *University of Alberta, Canada*.

CuNnAl and CuZnZr Ferrierite-Based Catalysts for CO_2 Hydrogenation to Methanol and Dimethyl-Ether
Fabio Salomone[1], Francesco Frusteri[2], Giuseppe Bonura[3], Micaela Castellino[1], Marco Fontana[4], Angelica Chiodoni[4], Nunzio Russo[1], Raffaele Pirone[1] and Samir Bensaid[1], *(1)Politecnico di Torino, Italy, (2)CNR_-TAE, Italy, (3)Consiglio Nazionale delle Ricerche, Italy, (4)Istituto Italiano di Tecnologia, Italy*.

***In-situ C*haracterization of the $M-CeO_2$ (M=Fe, Co, Ni) Catalysts for Methane Activation and the Methane Dry Reforming Reaction**
Feng Zhang[1], Zongyuan Liu[2], Jose A. Rodriguez[2] and Sanjaya Senanayake[2], *(1)Stony Brook University, USA, (2)Brookhaven National Laboratory, USA*.

Single-Atom Ir Chains for CO Oxidation and N_2O Decomposition
Jia Xu[1], Yafeng Cai[1,2], Dongyao Wang[1] and Jingyue Liu[1], *(1)Arizona State University, USA, (2)East China University of Science and Technology, China*.

A Mild and Scalable Solution-Phase Synthesis Route to Molybdenum Carbide Nanoparticles for Thermocatalytic CO_2 Reduction
Frederick G. Baddour[1], Emily Roberts[2], Anh To[1], Lu Wang[2], Susan E. Habas[1], Daniel Ruddy[1], Nicholas M. Bedford[3], Joshua Wright[4], Connor Nash[1], Joshua A. Schaidle[1], Richard Brutchey[2] and Noah Malmstadt[2], *(1)National Renewable Energy Laboratory, USA, (2)University of Southern California, USA, (3)University of New South Wales, Australia, (4)Illinois Institute of Technology, USA*.

A DFT Study of Chloroform Hydrodechlorination on Pd(111), Pd(100), and Pd(211): Structure Sensitivity and Catalyst Poisoning
Lang Xu, Saurabh Bhandari, Jiming Chen, Jonathan Glasgow and Manos Mavrikakis, *University of Wisconsin - Madison, USA*.

Deactivation of Pt/TiO_2 Catalyst for Biomass *Ex-Situ* Catalytic Fast Pyrolysis By Potassium Accumulation
Fan Lin[1], Michael B. Griffin[2], Joshua A. Schaidle[2] and Huamin Wang[1], *(1)Pacific Northwest National Laboratory, USA, (2)National Renewable Energy Laboratory, USA*.

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Iron and Nitrogen Doped Ball-Milled Biochar As Electrocatalyst for Oxygen Reduction Reaction
Francisco Lopez-Tenllado and Josephine Hill, *University of Calgary, Canada*.

Nanoparticle Reconfiguration at AuPd Catalysts Probed By Ethanol Oxidation
Adriano Braga[1], Adam Hoffman[2], Alexey Boubnov[2], Simon Bare[2] and Liane Rossi[1], *(1)University of São Paulo, Brazil, (2)SLAC National Accelerator Laboratory, USA*.

Single-Site Catalysts Supported in Metal-Organic Frameworks for the Hydrogenation of Ethene -an Experimental and Microkinetic Study
Hafeera Shabbir[1], Steven Pellizzeri[1,2], Magali Ferrandon[3], In Soo Kim[4], Massimiliano Delferro[3], Alex Martinson[3] and Rachel Getman[1], *(1)Clemson University, USA, (2)Eastern Illinois University, USA, (3)Argonne National Laboratory, USA, (4)Korea Institute of Science and Technology, Korea, Republic of (South)*.

A Facile Method of Synthesizing Pt Based Encapsulated Bimetallic Alloy Nanoclusters
Junjun Shan[1], Hui Wang[1], Lisa Nguyen[1], Aihua Zhang[1], Joshua Miles[1], Louis Guillen[1], Sungsik Lee[2], Fu-Kuo Chiang[3] and Jihong Cheng[1], *(1)NICE AMERICA RESEARCH, Inc, USA, (2)Argonne National Lab, USA, (3)National Institute of Clean-and-Low-Carbon Energy, China*.

Catalytic Fast Pyrolysis of Cassava (Manihot Esculenta) Peel: Effect of Temperature, Heating Rate, and Biomass-to-Catalyst Ratio on Pyrolysis Vapor Composition
Adegbola Balogun[1], Arvind Nanduri[2] and Patrick L Mills[1], *(1)Texas A&M University - Kingsville, USA, (2)Texas A&M University Kingsville, USA*.

Learning a Robust Mechanistic Model of Formaldehyde Dehydrogenation from Related Thermokinetic Data
Srinivas Rangarajan and Huijie Tian, *Lehigh University, USA*.

New ZrO_2-CeO_2 Mesoporous Material Applied for VOCs Oxidation
Stephane Siffert, *Université du Littoral Côte d'Opale, France*.

In Situ-FTIR As an Efficient Alternative to GC in Monitoring Catalytic Reactions
Malgorzata Smolilo and Anna Micek-Ilnicka, *Jerzy Haber Institute of Catalysis and Surface Chemistry, PAS, Poland*.

High Throughput XAS Reactor System for Operando Spectroscopy Study of Propane Oxidative Dehydrogenation
Shaojun Xu[1,2], Giannantonio Cibin[3], Diego Gianolio[3], Veronica Celorrio[3], Emma Gibson[2,4,5] and C. Richard A. Catlow[1,2,6], *(1)Cardiff University, United Kingdom, (2)UK Catalysis Hub, Research Complex at Harwell, United Kingdom, (3)Diamond Light Source, United Kingdom, (4)Johnson Matthey Technology Centre, United Kingdom, (5)University of Glasgow, United Kingdom, (6)University College London, United Kingdom*.

Automatic Generation of Microkinetic Models with RMG for the Catalytic Partial Oxidation of Methane
Emily Mazeau[1], Katrin Blondal[2], Franklin Goldsmith[2] and Richard West[1], *(1)Northeastern University, USA, (2)Brown University, USA*.

Ethylene Oligomerization over Alumino-Silicate Supported Nickel: Impact of Catalyst Preparation and Support Acidity on Performance
Joseph Mccaig and H. Henry Lamb, *North Carolina State University, USA*.

Simulating Temporal Analysis of Products Reactors and Optimizing Rate Constants with Finite Elements and Automatic Differentiation
Adam Yonge and Andrew J. Medford, *Georgia Institute of Technology, USA*.

Mechanistic Inference through Data Science and Transient Kinetic Data
Ross Kunz[1], Yixiao Wang[1], Adam Yonge[2], Sagar Sourav[1], Gregory Yablonsky[3], Andrew J. Medford[2] and Rebecca Fushimi[1], *(1)Idaho National Laboratory, USA, (2)Georgia Institute of Technology, USA, (3)Washington University in St. Louis, USA*.

Deep Eutectic Solvent Extraction of Lignin from Lignocellulose Biomass Residues
Dylan Cronin and Xiao Zhang, *Washington State University, USA*.

Sol-Gel Chemistry for Synthesis of Phosphorus and Nitrogen Doped Carbons for Oxygen Reduction Reaction
Burak Koyuturk[1], Francisco Ruiz-Zepeda[2], Miran Gaberšček[2], Davide Menga[1], Andrea Manzo[3] and Tim Patrick-Fellinger[1], *(1)Technical University of Munich, Germany, (2)National Institute of Chemistry, Slovenia, (3)Universtity of Pisa, Italy*.

Kinetics and Mechanistic Study of Stoichiometric Methane Oxidation on Pt+Pd/Al_2O_3 + $Mn_{0.5}Fe_{2.5}O_4$ Spinel
Kyle Karinshak, Pak Wing Chen, Debtanu Maiti, Lars C. Grabow and Michael P. Harold, *University of Houston, USA*.

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Electron-Poor Bifunctional Ligands and Their Metal Complexes
Daniel Sattler and Douglas Grotjahn, *San Diego State University, USA*.

Experimental Researches Regarding the Decontamination of Organophosphorous Chemicals Performed through Innovative Decontamination Systems Based on Plasma Sources and Photocatalytic Materials
Nicoleta Petrea[1], Nicoleta Grigoriu[1], Razvan Petre[1], Claudiu Lazaroaie[1], Gabriel Epure[1], Tudor Viorel Tiganescu[2], Andrada Pretorian[1], Stefan Neatu[3] and Sorin Vizireanu[4], *(1)Scientific Research Centre for CBRN Defense and Ecology, Romania, (2)Military Equipment and Technologies Research Agency, Romania, (3)National Institute of Materials Physics, Romania, (4)National Institute for Laser Plasma & Radiation Physics, Romania*.

Liquid-Solid IR-ATR Study of the Interaction of N-Heteroaromatic Compounds with Y Zeolites. Experimental and Theoretical Approaches
Ibrahim Khalil[1], Karine Thomas[1] and Françoise Maugé[2], *(1)KU Leuven, Belgium, (2)Laboratoire Catalyse et Spectrochimie, Normandie University, Ensicaen, Unicaen, CNRS, France*.

Synthesis of Model Alumina-Supported Mo Hydrotreating Catalysts: Surface-Dependent Co-Promotion
Ricardo Garcia de Castro[1,2], Elodie Devers[2], Mathieu Digne[2], Anne-Félicie Lamic-Humblot[1], Gerhard Pirngruber[2] and Xavier Carrier[1], *(1)Sorbonne Université, France, (2)IFP Energies nouvelles, France*.

Controlling the Stability and Activity of Supported-Metal Catalysts with Phosphonic Acid Monolayers
Alexander Jenkins, Charles Musgrave and Will Medlin, *University of Colorado Boulder, USA*.

Electrocatalytic Reduction of Nitrobenzene Sulfonic Acid Using Titanium(IV) Oxides Electrode
Tomoya Higashibayashi[1], Atsuhiro Tanaka[1,2] and Hiroshi Kominami[1], *(1)Kindai University, Japan, (2)Japan Science and Technology Agency (JST), Japan*.

Synergy between Gold and Palladium in the Transfer Hydrogenation Of Alkenes with Formic Acid
Raiza Guerra, Lais Reis Borges, Adriano Braga and Liane Rossi, *University of São Paulo, Brazil*.

Guaiacol Hydrodeoxygenation over Ni-Fe Supported on Nb_2O_5 and SiO_2 Catalysts
Nina Leao[1] and Ricardo R. Soares[2], *(1)Federal University of Uberlandia, Brazil, (2)Federal University of Uberlândia, Brazil*.

Automated Identification of Compact Microkinetic Models of Complex Catalytic Networks: Application to Polyol Decomposition
Bowen Li, Huijie Tian and Srinivas Rangarajan, *Lehigh University, USA*.

Ag Ion-Exchanged ZSM-5 Zeolites for Hydrocarbon Trapping Applications
Jungkuk Lee and Eleni A. Kyriakidou, *University at Buffalo, USA*.

Exploiting Concentration Gradients for the Selective Conversion of Light Alkanes on Pt Clusters Encapsulated in Small-Pore Zeolites
Samuel Leung and Enrique Iglesia, *University of California, USA*.

Determining Reaction Intermediates and Rate Constants in Heterogeneous Catalysis Via Modulation Excitation Spectroscopy
Hongda Zhu, Priya Darshini Srinivasan, Bhagyesha Patil and Juan Bravo Suárez, *The University of Kansas, USA*.

Reforming of Methane on Ni Substituted Lanthanum Zirconate Pyrochlore to Produce Syngas– Activity and Stability Study
Srikar Bhattar[1], Swarom Kanitkar[2], Ashraf Abedin[1], Daniel J. Haynes[3], Dushyant Shekhawat[4] and James J. Spivey[1], *(1)Louisiana State University, USA, (2)National Energy Technological Laboratory, USA, (3)National Energy Technology Laboratory, USA, (4)National Energy Technology Laboratory, DOE, USA*.

Non-Stoichiometric Copper- and Nickel-Based Perovskite Catalysts for Selective Hydrogenation of Levulinic Acid
Jianhui Li, *Xiamen University, China*.

Effect of Pt Loading of Pt/TiO_2 Catalysts on the Deoxygenation of Biomass-Derived Benzyl Alcohol at Ex-Situ Catalytic Fast Pyrolysis Conditions (CFP)
Tuong Bui, Michael B. Griffin, Joshua A. Schaidle, Kathleen Brown and Peter Ciesielski, *National Renewable Energy Laboratory, USA*.

Efficient Syngas to Aromatics Conversion with a Sinter-Resistant Fe_3O_4-Zeolite Dragonfruit-Structured Catalyst
Chengyan Wen[1] and Longlong Ma[2], *(1)Southeast university, China, (2)Guangzhou Institute of Energy Conversion, Chinese Academy of Sciences, China*.

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Nanoreactors Immobilized: Gold Nanoparticles Confined with CeO_2 and Supported on Al_2O_3
Eunice Vargas[1], Mariela Franco[1], Viridiana Evangelista[1], Miguel Estrada[2] and Andrey V. Simakov[2], *(1)Universidad Autónoma de Baja California, Mexico, (2)Universidad Nacional Autónoma de México, Centro de Nanociencias y Nanotecnología, Mexico*.

Zeolite and Carbon Supported Ru Catalysts for Selective Levulinic Acid Hydrogenation into γ-Valerolactone
Irina L. Simakova[1], Yuliya S. Demidova[2], Nandini Devi[3], P. L. Dhepe[3], Prashant Niphadkar[3], Vijay Bokade[3] and Dmitry Murzin[4], *(1)Boreskov Institute of Catalysis, Russian Federation, (2)Novosibirsk State University, Russian Federation, (3)CSIR-National Chemical Laboratory, India, (4)Åbo Akademi University, Process Chemistry Centre, Turku/Åbo, Finland*.

Interaction of Deep Eutectic Solvent with *Trametes Versicolor* Laccase
Jou Chan and Xiao Zhang, *Washington State University, USA*.

Trans-Spanning Ligands with a Macrocycle Cavity, Capable for Water Oxidation
Sima Yazdani[1], Douglas Grotjahn[2] and Curtis Moore[3], *(1)San Diego state university, USA, (2)San Diego State University, USA, (3)University of California, SD, USA*.

Understanding How the Localized Reaction Environment Impacts the Performance of a Ni Catalyst Supported on a Metal-Organic Framework
Stephen Vicchio and Rachel Getman, *Clemson University, USA*.

Heat-Treated Swellable Organically Modified Silica (HSOMS): A Novel Catalytic Support for Preferential Oxidation of CO
Dishari Basu[1], Saurabh Ailawar[1], Paul Edmiston[2] and Umit S. Ozkan[1], *(1)The Ohio State University, USA, (2)The College of Wooster, USA*.

Probing the Relationship between ZnO Surface Vacancies and Its Reactivity By CO Oxidation
Xiang Wang, Yue Sun, Junwei Xu, Xianglan Xu and Xiuzhong Fang, *Nanchang University, China*.

Formic Acid Dehydrogenation on Cu-Pt Supported Nanoparticles
Catalina Leiva, Romel Jiménez, Alejandro Karelovic and Camila Fernández, *Universidad de Concepción, Chile*.

Reactive Calorimetry: Measuring the Entropic Information of Strongly Bound Adsorbates
Ajibola Lawal[1] and Omar Abdelrahman[1,2], *(1)University of Massachusetts Amherst, USA, (2)University of Delaware, USA*.

Selective Oxidation of 1-Octanol on Silica-Supported Nanogold Catalysts
Yulia Kotolevich[1], Oksana Martyunyuk[1,2], Jesús Efren Cabrera Ortega[3], Rodrigo Vélez[4], Susana Martínez Gonzalez[5], Hugo Tiznado[1,6], Mario Farias[1], Alexey Pestryakov[2], Nina Bogdanchikova[1] and Vicente Cortés Corberán[5], *(1)Centro de Nanociencias y Nanotecnología, Universidad Nacional Autónoma de México, Mexico, (2)Tomsk Polytechnic University, Russian Federation, (3)Grupo de Ecología y Conservación de Islas, Mexico, (4)Universidad Autónoma de Baja California, Mexico, (5)CSIC, Spain, (6)Universidad Nacional Autónoma de México, Centro de Nanociencias y Nanotecnología, Mexico*.

Probing the Activity Trends of Pd/SSZ-13 Under Industrial Emission Conditions for Passive NOx Adsorption
Pranaw Kunal, Todd J. Toops and Michelle Kidder, *Oak Ridge National Laboratory, USA*.

Impact of Novel Biofuels on Emissions Control Catalyst Performance
Sreshtha Sinha Majumdar, Josh A. Pihl and Todd J. Toops, *Oak Ridge National Laboratory, USA*.

Highly Stable Precious Metal Catalysts on Newly Developed CeO_2-Based Support for Efficient CO Oxidation
Shaohua Xie[1], Ge Song[1], Wei Tan[1,2], Fei Gao[2], Lin Dong[2] and Fudong Liu[1], *(1)University of Central Florida, USA, (2)Nanjing University, China*.

Influence of Organic Molecule Integration on Formation of Electrodeposited Nickel Oxide Oxygen Evolution Catalysts
Ke-Hsuan Wang, Hayato Ikeuchi and Takeshi Kawai, *Tokyo University of Science, Japan*.

Dominance of H-Bonding in Determining Effects of Confinement for Oxygenate Reactions in Zeolites and Its Relationship to Al Siting
Alexander Hoffman[1], Claire Nimlos[2], Philip Kester[2], Rajamani Gounder[2] and David Hibbitts[1], *(1)University of Florida, USA, (2)Purdue University, USA*.

Catalyst Deactivation and the Role of Metal Loading
Emmett Goodman[1], Aaron Johnston-Peck[2], Elisabeth Dietze[3], Cody Wrasman[1], Adam Hoffman[4], Frank Abild-Pedersen[4], Simon Bare[4], Philipp Plessow[3] and Matteo Cargnello[1], *(1)Stanford University, USA, (2)National Institute of Standards and Technology, USA, (3)Karlsruhe Institute of Technology, Germany, (4)SLAC National Accelerator Laboratory, USA*.

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One-Step Activation of CH_4 with CO_2 to Liquid Fuels and Chemicals at Room Temperature in a Plasma-Catalytic Reactor
Yaolin Wang, Xin Tu and Li Wang, *University of Liverpool, United Kingdom*.

Study of Nickel- and Gold-Nickel-Supported Catalysts for the Ethanol Steam Reforming
Sergio A. Jimenez-Lam[1], Felipe A. Gaxiola-Cebreros[1], Marioly S. Cervantes-Castro[1], Virginia Collins-Martínez[2], Trino Zepeda[2,3], Jose P. Ruelas Leyva[1] and Alfonso Talavera Lopez[4], *(1)Universidad Autonoma de Sinaloa, Mexico, (2)Centro de Investigación en Materiales Avanzados, S.C., Chihuahua, Mexico, (3)Universidad Nacional Autónoma de México, Centro de Nanociencias y Nanotecnología, Mexico, (4)Universidad Autonoma de Zacatecas, Mexico*.

Computational Investigation of Transition Metal Sulfides for Overcoming the Challenges of Electrocatalytic CO_2 Reduction
Foroogh Khezeli, Maggie McGovern and Craig Plaisance, *Louisiana State University, USA*.

Resolving the Influences of Ionic Liquid Coatings and Supports on the Catalytic Properties of Supported Iridium Complexes and Clusters
Melike Babucci[1], Adam Hoffman[2], Louise M. Debefve[1], Simon Bare[2], Bruce C. Gates[1] and Alper Uzun[3], *(1)University of California Davis, USA, (2)SLAC National Accelerator Laboratory, USA, (3)Koc University, Turkey*.

Selectively Converting Biomass to Jet Fuel in Large-Scale Apparatus
Jie Li[1,2], Jian Sun[3], Yoshiharu Yoneyama[2], Guohui Yang[2] and Noritatsu Tsubaki[2], *(1)Yangzhou University, China, (2)University of Toyama, Japan, (3)Dalian Institute of Chemical Physics, Chinese Academy of Sciences, China*.

Investigations of Ni-N Bonding in Ni, N-Doped Carbon Electrocatalysts for Selective Electrochemical CO_2 Reduction to CO
David Koshy[1], Alan Landers[2], Ahmed Abdellah[3], David Cullen[4], Anton Ievlev[4], Drew Higgins[3], Chris Hahn[2], Zhenan Bao[1] and Thomas F. Jaramillo[1], *(1)Stanford University, USA, (2)SLAC National Accelerator Laboratory, USA, (3)McMaster University, Canada, (4)Oak Ridge National Laboratory, USA*.

Estimating in-Situ Ni Dispersion in ALD Catalyst through Sequential H_2-CO Chemisorption Technique
Shaik Afzal[1], Anuj Prakash[2], Patrick Littlewood[3], Tobin J. Marks[3], Eric Weitz[3], Peter C. Stair[3] and Nimir Elbashir[2], *(1)Texas A&M University, USA, (2)Texas A&M University at Qatar, Qatar, (3)Northwestern University, USA*.

Remarkable Bimetallic Effect and Reaction Mechanism of Ethylene Glycol Oxidation on Pt-Fe Catalyst in Aqueous Phase
Honghong Shi[1], Xiaogang Yin[2], Bala Subramaniam[3] and Raghunath V. Chaudhari[1], *(1)University of Kansas, USA, (2)Guizhou Normal University, China, (3)The University of Kansas, USA*.

Livedesign: Discovery Platform for Catalysis and Reaction Design
Thomas Mustard, Yuling An, Shaun Kwak, Anand Chandrasekaran and Mathew Halls, *Schrödinger, Inc, USA*.

Increasing Acidity on Amorphous Silica-Alumina Via Highly Dispersed Surface Pentacoordinated Al^V Species
Zichun Wang[1] and Jun Huang[2], *(1)Macquarie University, Australia, (2)University of Sydney, Australia*.

Dry Reforming of Hydrocarbons over Ni Catalysts Supported on Ti-Doped Ceria
Daniel Braedt, Jintao Miao, Qian Yang, Joseph Holles and Jing Zhou, *University of Wyoming, USA*.

Tuning the Catalytic Preference of Ruthenium Catalysts for Nitrogen Reduction By Atomic Dispersion
Hai Yu[1] and Tianyi Ma[2], *(1)CSIRO, Australia, (2)University of Newcasl, Australia*.

Understanding Boron-Containing Oxidative Dehydrogenation Catalysts through Well-Defined Supported Materials
Melissa Cendejas[1], Alyssa Love[2], Brijith Thomas[3], Aaron Rossini[3], Lesli Mark[1] and Ive Hermans[4], *(1)University of Wisconsin–Madison, USA, (2)ExxonMobil Research and Engineering, USA, (3)US DOE Ames Laboratory, USA, (4)University of Wisconsin - Madison, USA*.

CO_2-Promoted Catalytic Process Forming Higher Alcohols with Tunable Nature at Record Productivity
Cecilia Mondelli[1], Ho Ting Luk[1], Olga Safonova[2], Sebastian Siol[3], Joseph Stewart[4], Daniel Curulla-Ferré[4] and Javier Pérez-Ramírez[1], *(1)ETH Zürich, Switzerland, (2)Paul Scherrer Institute, Switzerland, (3)Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland, (4)Total Resarch & Technology Feluy, Belgium*.

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TUESDAY POSTER SESSIONS

Design of In_2O_3-Based Catalysts Towards an Industrial CO_2-to-Methanol Process
Joseph Stewart[1] and Javier Pérez-Ramírez[2], *(1)Total Research & Technology Feluy, Belgium, (2)ETH Zürich, Switzerland*.

Activated Carbons Catalysts for Bischalcone Production
Caroline Winter Catharin and Caridad Noda Perez, *Universidade Federal de Goiás, Brazil*.

The ORR Kinetics of ZIF-Derived Fe-N-C Electrocatalysts
Xiaohua Zhang, Yiling Song and Jianlin Shi, *Shanghai Institute of Ceramics, Chinese Academy of Sciences, China*.

Fermentation Derived New Platform Chemical from Biomass and Subsequent Upgrading into High-Value Chemicals Via Chemocatalytic Transformation Routes
Md Imteyaz Alam, Adarsh Madhu, Shelaka Gupta, Tuhin Suvra Khan, Atul Narang and M. Ali Haider, *Indian Institute of Technology Delhi, India*.

Mn-CeOx/Cordierite Catalysts for Non-Methane Hydrocarbon Oxidation in Cooking Oil Fumes
Honghong Yi, *University of Science and Technology Beijing, China*.

Relevant Knowledge Extraction from Catalytic Scientific Literature Using IBM Watson Natural Language Processing (NLP) Tool
Philibert Leflaive, Anne-Sophie Gay, Sylvain Desroziers and Mathieu Feraille, *IFP Energies nouvelles, France*.

Direct Conversion of Crude Oil to Petrochemicals Using a Multi-Zone Fluidized Bed Reactor
Mohammed Alabdullah, *King Abdullah University of Science and Technology, Saudi Arabia*.

Towards Molecular Understanding of Unzipping Cyclic Saccharide
Chia-Hui Wu[1], Yi-Shiuan Tsai[1], Wei-Chien Fang[1,2] and Po-Wen Chung[1], *(1)Academia Sinica, Taiwan, (2)National Taiwan University of Science and Technology, Taiwan*.

Improvement in Alkali Metal Resistance of V_2O_5-WO_3/TiO_2 SCR $DeNO_x$ Catalysts Modified with Ce and Cu
Jinxiu Wang and Jinsheng Chen, *Institute of Urban Environment, Chinese Academy of Sciences, China*.

Understanding the Adsorption of Saccharides on Structurally Interchangeable Oxide Surface
Yi-Shiuan Tsai[1], Wei-Chien Fang[1,2], Chia-Hui Wu[1], Raju Kumar[1], Timothy Talusan[3], Leon Payawan[3] and Po-Wen Chung[1,4], *(1)Academia Sinica, Taiwan, (2)National Taiwan University of Science and Technology, Taiwan, (3)University of Philippines Diliman, Philippines, (4)National Sun Yat-Sen University, Taiwan*.

Increased Nickel Sites in BEA Mesopores Leads to Enhanced Anisole Hydrodeoxygenation Activity
Penghui Yan[1], Michael Stockenhuber[2] and Eric Kennedy[2], *(1)The University of Newcastle, Australia, Australia, (2)University of Newcastle, Australia*.

Catalytic Decomposition of Sulfuric Acid over $CuFe_2O_4$/SiO_2 Catalyst for Hydrogen Production in the S–I Cycle
Sachin Tomar and Sreedevi Upadhyayula, *Indian Institute of Technology Delhi, India*.

Preparation of Well-Dispersed Co Nanoclusters on Structured Carbon for Low-Temperature CO_2 Methanation
Chunxia Zhao[1], Feng Li[1], Yunxia Yang[2], Renata Lippi[2], Wei Jin[1] and Wen Chen[1], *(1)Wuhan University of Technology, China, (2)The Commonwealth Scientific and Industrial Research Organization, Australia*.

Root Cause Analysis of Low Performance of Zeolite Based Selective Catalyst for Production of Para-Diethyl Benzene
Kshudiram Mantri, *Reliance Industries Limited, India*.

Crystal Facet Effect of CeO_2 Support in the Alloying Behavior of Ni-Cu Bimetal and Catalytic Behavior for Hydrogenation of Acetylene
Yanan Liu, Junting Feng and Dianqing Li, *Beijing University of Chemical Technology, China*.

N_8^- Polynitrogen Stabilized on Boron Doped Graphene As Metal-Free Electrocatalysts for Oxygen Reduction Reaction
Zhenhua Yao and Xianqin Wang, *New Jersey Institute of Technology, USA*.

Zirconium–Lignosulfonate Polyphenolic Polymer for Highly Efficient Hydrogen Transfer of Biomass-Derived Oxygenates Under Mild Conditions
Shenghui Zhou and Haisong Qi, *South China University of Technology, China*.

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Resolving CO_2 Activation and Hydrogenation over Iron-Based Catalysts from DFT Investigation
Xianglin Liu, *East China University of Science and Technology, China*.

Atomically Decoration of MnO_x on Palladium Nanoparticles Catalysts Towards Solvent-Free Aerobic Oxidation of Benzyl Alcohol
Jianfeng Yang, Kun Cao, Miao Gong, Jiaming Cai and Rong Chen, *Huazhong University of Science and Technology, China*.

Ni-Ga Catalysts for Methanol Synthesis from CO_2 at Low Pressures
Melis Duyar[1], Jonathan Snider[2], Alessandro Gallo[3] and Thomas F. Jaramillo[2], *(1)University of Surrey, United Kingdom, (2)Stanford University, USA, (3)SLAC National Accelerator Laboratory, USA*.

Characterization of Iron Contaminated Equilibrium FCC Catalysts
Hui Jiang, *W R Grace & Co, USA*.

Influences of Fluorine on the Atomic-Level Compositions and Aromatization Properties of Pt-KL Zeolite Catalyst
Tsatsral Battsengel, *University of California Santa Barbara, USA*.

A Catalytic Hydrocracking Approach for Zeolite Detemplation at Mild Condition
Zhenhua Yao[1], Xuguang Liu[2] and Maocong Hu[1], *(1)Jianghan University, China, (2)Qingdao University of Science and Technology, China*.

Reactor System for in-Situ and Real-Time Monitoring of Mass Changes during Catalytic and Other Chemical Processes.
Daniel Rojo Gama[1], Arne Karlsson[1], Rune Lødeng[1], Martin Plassen[1], Elisabeth Myhrvold[1], Karl Henrik Haugholt[2] and Duncan Akporiaye[1], *(1)SINTEF Industry, Norway, (2)SINTEF Digital, Norway*.

Rational Catalysts Design and Reaction Performance of Dibenzofuran Selective Hydrogenolysis
Chuang Li, Jie Zhang and Changhai Liang, *Dalian University of Technology, China*.

Carbon Nanofilaments and Hydrogen Production Via Ethylene Dry Reforming Using a Ni Based-Catalyst Derived from a Mining Residue
Abir Azara and Nicolas Abatzoglou, *Université de Sherbrooke, Canada*.

Behavior of a Fluidized Bed Reactor and Catalyst Particles Morphology Changes Occurred during the Synthesis of Carbon Nanotubes
Ricardo Prada Silvy and Sathish kumar Lageshetty, *Chasm Advanced Materials, USA*.

Nanoisozymes: The True Originality behind Enzyme-Mimetic Activity of Faceted CeO_2 nanocrystallites
Yung-Kang Peng, *City University of Hong Kong, Hong Kong*.

Surface Structure and Surface Species Governed Interfacial Charge Transfer and Photocatalytic Efficiency of Methanol on TiO_2
Cong Fu[1] and Weixin Huang[2], *(1)University of Science and Technology of China, China, (2)University of Science and Technology of China, Hefei 230026, P. R. China., China*.

Catalyst Regeneration in the Process to Make Phenylmethyldichlorosilane
Krishna Janmanchi, *The Dow Chemicals Company, USA*.

Support Effect in Catalytic Methanol Synthesis
Niels D. Nielsen, Anker D. Jensen and Jakob M. Christensen, *Technical University of Denmark, Denmark*.

Valorization of Vegetable Oils By Heterogeneous Catalysis Via Metathesis Reactions
Carlos Apesteguia and Andres Trasarti, *INCAPE, Argentina*.

Mn-Ce-Fe/TiO_2 Catalysts for NO_x SCR at Low Temperature
Fabio Alessandro Deorsola, Camilla Galletti, Samir Bensaid and Raffaele Pirone, *Politecnico di Torino, Italy*.

CO_2 Hydrogenation: Direct / One-Step Dimethyl Ether Synthesis
Dustin Simone, *Albert-Ludwigs University Freiburg, Germany*.

Interfacial Design of Ceria-Based Nanomaterials for Photocatalytic Hydrogen Evolution
Weixin Zou and Lin Dong, *Nanjing University, China*.

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Surface Protonics on $SrZrO_3$ Under Dry (N_2+H_2) Conditions
Taku Matsuda[1], Yudai Hisai[1], Kota Murakami[1], Shuhei Ogo[1], Truls Norby[2] and Yasushi Sekine[1], *(1)Waseda University, Japan, (2)Oslo University, Norway*.

Visible-Light Photoactive BiOCl Nanosheets Prepared By a Solution Chemistry Method
Juanjuan Liu and Jielin Zhou, *Hangzhou Dianzi University, China*.

Synergy Effect between an Electric Field and Alloy for Steam Reforming of Methane
Maki Torimoto[1], Shuhei Ogo[1], Shinya Furukawa[2] and Yasushi Sekine[1], *(1)Waseda University, Japan, (2)Hokkaido University, Japan*.

One-Pot Hydrothermal Synthesis of Nitrogen Functionalized Carbonaceous Material Catalysts with Embedded Iron Nanoparticles for CO_2 Hydrogenation to Hydrocarbons
Lisheng Guo, Guohui Yang, Yoshiharu Yoneyama and Noritatsu Tsubaki, *University of Toyama, Japan*.

Developing Molybdenum Sulfide Nanocatalysts for the Slurry Phase Hydrogenation of Polycyclic Aromatic Hydrocarbons and Coal Tar into Clean Fuels
Anda Zheng, Donge Wang, Huaijun Ma, Zhendong Pan, Lin Wang and Zhijian Tian, *Dalian Institute of Chemical Physics, Chinese Academy of Sciences, China*.

Application of Structure Descriptor for Rational Design of Transition Metal Catalysts
Daojian Cheng and Haoxiang Xu, *Beijing University of Chemical Technology, China*.

Oxidation of Cyclic Hydrocarbons with Hydrogen Peroxide Using Fe Complexes Immobilized into Montmorillonite
Syuhei Yamaguchi, Daijiro Ihara, Yuki Yamashita, Yudai Uemoto and Hidenori Yahiro, *Ehime University, Japan*.

Exsolution of Metallic Ru Nanoparticles from Defective, Fluorite-Type Solid Solutions $Sm_2Ru_xCe_{2-X}O_7$ to Impart Stability on Dry Reforming Catalysts
Muhammad Awais Naeem[1], Paula Macarena Abdala[1], Andac Armutlulu[2], Sung Min Kim[2], Alexey Fedorov[1] and Christoph Müller[1], *(1)ETH Zürich, Switzerland, (2)ETH Zurich, Switzerland*.

Innovation & Commercial Application in Fischer-Tropsch for Sustainable Products
James Paterson, *BP International, United Kingdom*.

Metal Oxides Catalysts for 4-Nitrochalcone Production
Caroline Winter Catharin, Caridad Noda Perez and Christian Gonçalves Alonso, *Universidade Federal de Goiás, Brazil*.

Gold Catalysts Synthesized Using Incipient Wetness Impregnation for Propylene Epoxidation
Zheng Lu[1,2], Muntaseer Bunian[2], Zhuoran Gan[2], Tianpin Wu[1], Heath Turner[3] and Yu Lei[2], *(1)Argonne National Laboratory, USA, (2)The University of Alabama in Huntsville, USA, (3)University of Alabama - Huntsville, USA*.

Methane Activation over a Boron Nitride Catalyst Driven By in Situ Formed Molecular Water
Yang Wang[1], An-Hui Lu[1] and Xiaoming Cao[2], *(1)Dalian University of Technology, China, (2)East China University of Science and Technology, China*.

Impact of Forced Convection and Electrolyte Cations on Spectroscopic Observations of the Electrochemical CO Reduction Reaction
Arnav Malkani[1], Jing Li[2], Ming He[2], Jacob Anibal[1], Qi Lu[2] and Bingjun Xu[1], *(1)University of Delaware, USA, (2)Tsinghua University, China*.

Single-Crystalline SAPO-11 Zeolite Synthesized By a Phase Transition Strategy and Its Performance in *N*-Dodecane Hydroisomerization
Xinqing Chen, Lixia Ge, Gan Yu and Yuhan Sun, *Shanghai Advanced Research Institute, Chinese Academy of Sciences, China*.

Plasma Catalysis for Disassembly of Polymers into Valuable Products
Anne Gaffney[1], Piyush Sabharwall[1], Roxanne Pinsky[1], Lucun Wang[2], Daniel M. Ginosar[2] and John Foster[3], *(1)INL, USA, (2)Idaho National Laboratory, USA, (3)University of Michigan, USA*.

Fe-MOFs As Precursors for the Dehydrogenation of Light Alkanes
Alberto Rodriguez-Gomez and Jorge Gascon, *King Abdullah University of Science & Technology, Saudi Arabia*.

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Hydrogen Spillover and Cross Migration on the Genesis and Performance of Metal/Anatase TiO_2 hydrodeoxygenation Catalysts
Kairui Liu[1], Xiaoqiang Zhang[1], Qi Fang[1], Shi Bai[2], Michael Janik[3] and Z. Conrad Zhang[1], *(1)Dalian Institute of Chemical Physics, China, (2)University of Delaware, USA, (3)Pennsylvania State University, USA*.

Unraveling the Mechanism of Glycerol Oxidation to Dicarboxylic Acids over a Copper Oxide Catalyst
Prince Amaniampong[1], Quang Thang Trinh[2], Samir Mushrif[3] and Francois Jerome[1], *(1)University of Poitiers, France, (2)Cambridge Centre for Advanced Research and Education in Singapore, Singapore, (3)University of Alberta, Canada*.

Enhanced Dry Reforming By Ni on a Hierarchical Support
Anup Tathod[1], Naseem Hayek[1], David Simakov[2] and Oz M. Gazit[1], *(1)Israel Institute of Technology -Technion, Israel, (2)University of Waterloo, Canada*.

Mesoporous Mixed CuCo Oxides As Robust Catalysts for Liquid-Phase Furfural Hydrogenation
Hojeong Lee and Kwangjin An, *Ulsan National Institute of Science and Technology(UNIST), Korea, Republic of (South)*.

Mobility of Copper in Cu-Zeolite SCR Catalysts
Magnus Skoglundh, *Chalmers University of Technology, Sweden*.

The Mechanism of the Ru(II)-Catalyzed Selective ß-Methylation of Alcohols Using Methanol As the C1 Source By Computational/Experimental Studies
Markus Hölscher, Akash Kaithal, Walter Leitner and Marc Schmitz, *RWTH Aachen University, Germany*.

Multiscale Imaging and in Situ Analysis of Industrial Catalyst Used for Emission Control
Monik Panchal[1,2], Emma Gibson[2,3], C. Richard A. Catlow[1,2,4], Andrew M. Beale[1,2], Manfred Schuster[5], Timothy Hyde[5] and Andrew York[5], *(1)University College London, United Kingdom, (2)UK Catalysis Hub, United Kingdom, (3)University of Glasgow, United Kingdom, (4)Cardiff Catalysis Institute, United Kingdom, (5)Johnson Matthey Technology Centre, United Kingdom*.

Effect of a Promoter (Ni, Fe, Zn and Cu) on the Mo-Based Supported Catalysts for Hydrodeoxygenation (HDO) of Propylguaiacol
You Wayne Cheah[1], Derek Creaser[1], Louise Olsson[1] and Olov Öhrman[2], *(1)Chalmers University of Technology, Sweden, (2)Preem AB Sweden, Sweden*.

Oxidative Coupling of Methane on Modified Fluorite Type Catalysts
Davi Petrolini[1], Jose M. Assaf[2] and Elisabete M. Assaf[3], *(1)USP, Brazil, (2)Federal University of São Carlos, Brazil, (3)University of São Paulo, Brazil*.

Unveiling the Carbonation Mechanism on MgO-Based Sorbents Via *in Situ* TEM
Monica Louise Triviño and Jeong Gil Seo, *Myongji University, Korea, Republic of (South)*.

Highly Active Cobalt-Nickel Phosphides for the Solvent-Free Hydrogenation of Levulinic Acid
Reibelle Raguindin[1], Jeong Gil Seo[2] and Mahlet Nigus Gebresillase[2], *(1)Myongji Univeristy, Korea, Republic of (South), (2)Myongji University, Korea, Republic of (South)*.

High Efficiency of Hydrophobically Made Ag and Cu Nanomaterials in CO_2 Electroreduction
Zhijie Wang, Anxiang Guan, Na Cao, Linping Qian and Gengfeng Zheng, *Fudan University, China*.

Effects of Reactor Design and Catalyst Position on the NOCM Reaction Using Fe©SiO_2
Leon Lefferts and Rolf Postma, *University of Twente, Netherlands*.

Direct Catalytic Conversion of Furan to Furan-Derived Amine
Karine de Oliveira Vigier[1], Shi Jiang[1,2], Wahiba Ramdani[1], Changru Ma[2], Eric Muller[3], Francois Jerome[1] and Marc Pera-Titus[2], *(1)University of Poitiers, France, (2)Solvay, China, (3)3Solvay, Advanced Organic Chemistry & Molecule Design Laboratory,, France*.

Oxidative Coupling of Methane By Mo-Incorporated MFI Zeolite Prepared Via Mechanochemical Method
Mizuho Yabushita[1], Mami Horie[1], Motohiro Yoshida[1], Fumiya Muto[1], Sachiko Maki[1], Kiyoshi Kanie[1], Toshiyuki Yokoi[2] and Atsushi Muramatsu[1,3], *(1)Tohoku University, Japan, (2)Tokyo Institute of Technology, Japan, (3)JST CREST, Japan*.

Strong Metal-Support Interaction Modulated Hydrodeoxygenation Selectivity of Ni/Anatase TiO_2 for Lignin Derived Phenolics
Xiaoqiang Zhang[1], Peifang Yan[1], Bin Zhao[2] and Z. Conrad Zhang[1], *(1)Dalian Institute of Chemical Physics, China, (2)Dalian University of Technology, Dalian, China*.

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Low-Temperature Hydrogenation of CO_2 to Methanol over Re/TiO_2 and $Pt/MoO_x/TiO_2$ Catalysts
Takashi Toyao, Taichi Yamaguchi, Kah Wei Ting and Ken-ichi Shimizu, *Hokkaido University, Japan*.

Heterogenous Synethesis of Polyoxymethylene Dialkyl Ethers Catalyzed By Highly Efficient Copoly(ionic liquid)s
Guoqin Wang[1,2], Gangli Zhu[2], Zhen Li[2], Chungu Xia[2], Jing Chen[2] and Yong Ding[3], *(1)University of Chinese Academy of Sciences, China, (2)Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, China, (3)Lanzhou University, China*.

Isomorphous Substitution Route Towards Fabricating Industrial Cu/ZnO Catalysts with High Substitution Ratio from Phase Pure Precursors
Huayan Zheng, Nilesh Narkhede, Huacheng Zhang and Zhong Li, *Taiyuan University of Technology, China*.

Effect of Vanadium Oxide Content on the Performance of $Pd/VO_x/SiO_2$ Catalysts for Hydrogenoxygenation of Phenol
Guilherme Garrido[1], Fábio Noronha[2], Raimundo Crisostomo Rabelo-Neto[2], Gary Jacobs[3] and Alejandra Teran[3], *(1)Military Institute of Engineering, Brazil, (2)National Institute of Technology, Brazil, (3)UTSA, USA*.

Zeolite Caging Effect on Particle Agglomeration of Pd Ion-Exchanged Model Passive NOx Adsorbers
Yuntao Gu, Silvia Marino and William Epling, *University of Virginia, USA*.

Disentangling Reaction and Deactivation of Single Oriented Sinusoidal and Straight Channels within Zeolite ZSM-5 Thin-Films
Donglong Fu[1], Onno van der Heijden[1], Katarína Stančiaková[1], Joel E. Schmidt[2] and Bert M. Weckhuysen[1], *(1)Utrecht University, Netherlands, (2)Debye Institute for Nanomaterials Science, Utrecht University, Netherlands*.

Theoretical Investigations of Oxidative Dehydrogenation of Propane over Palladium Surfaces
Eduard Araujo-Lopez[1], Bart Vandegehuchte[2], Dimitry I. Sharapa[1] and Felix Studt[1], *(1)Karlsruhe Institute of Technology, Germany, (2)Total Research and Technology Feluy, Belgium*.

Collective Excitation of Plasmon-Coupled Au-Nanochain Boost Photocatalytic Hydrogen Evolution of Semiconductor
Gang Liu, *Jilin University, China*.

$NiAl_xFe_{2-x}O_4$ Mixed Oxides Catalysts for Methane Reforming with CO_2: Effect of Al vs. Fe Contents and Precursors Anions
Rafik Benrabaa[1], Karima Rouibah[2], Jesus Guerrero[3], Pascal Roussel[3], Annick Rubens[3], Rose-Noëlle Vannier[3] and Axel Löfberg[3], *(1)Université 20 Août-Skikda, Algeria, (2)Université Mohamed Seddik Ben Yahia-Jijel, Algeria, (3)UCCS - UMR CNRS 8181, France*.

Water-Soluble Peroxotitanium Aminopolycarboxylates for Catalytic Oxygen Transfer Reactions
Zhao-Hui Zhou, *Xiamen University, China*.

Insight into the Performance and Action Mechanism of Metal-Free Acetylene Hydrochlorination Catalyzed By Imidazole
Chaoyue Zhao, Qingxin Guan, Fang Zou, Yu Zhao, Yuping Liu, Xiaoqi Yan and Wei Li, *Nankai University, China*.

Selective Deoxygenation of Phenolics to Aromatics on Ni Based Catalysts Via Tuning the Surface Structure
Xinli Zhu[1], Feifei Yang[1], Dan Liu[1], Qingfeng Ge[2] and Daniel Resasco[3], *(1)Tianjin University, China, (2)Southern Illinois University, USA, (3)University of Oklahoma, USA*.

Cu_2O/CuO Nanocomposites Derived from HKUST-1 for Visible Light Assisted Dye Degradation
Hui Fang[1], Fang Zou[2], Qingxin Guan[2], Yu Zhao[2], Xiaoqi Yan[2], Yuping Liu[2] and Wei Li[2], *(1)Tianjin University, China, (2)Nankai University, China*.

Conversion and Adsorption of Dimethyl Sulfide over BEA Zeolite
Kazumasa Oshima, Rina Kadonaga, Munehiro Shiba and Shigeo Satokawa, *Seikei University, Japan*.

Metal-Free Silicon Boride Catalyst for Oxidative Dehydrogenation of Light Alkanes to Olefins with High Selectivity and Stability
Bing Yan and An-Hui Lu, *Dalian University of Technology, China*.

Comparative Investigation of Homogeneous and Heterogeneous Brønsted Base Catalysts for the Isomerization of Glucose to Fructose
Season Chen[1,2], Daniel CW Tsang[1] and Jean-Philippe Tessonnier[2], *(1)The Hong Kong Polytechnic University, Hong Kong, (2)NSF-ERC Center for Biorenewable Chemicals (CBiRC), USA*.

Activity and Selectivity Control in Electrocatalytic CO_2 Reduction Via Anion-Steering Water Activation
Wenchao Ma, Shunji Xie and Ye Wang, *Xiamen University, China*.

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Insight into Deactivation of NH_3-SCR Catalysts with Nanoscale Resolved X-Ray Microscopy
Xinwei Ye[1,2], Joel Schmidt[1], Ru-Pan Wang[1], Ilse van Ravenhorst[1], Ramon Oord[1], Tiehong Chen[2], Frank de Groot[1], Florian Meirer[1] and Bert M. Weckhuysen[1], *(1)Utrecht University, Netherlands, (2)Nankai University, China*.

Using AgCl Modification TNT for Removing Arsenate and Arsenite
Cheng-Yen Tsai and Chen-Wuing Liu, *National Taiwan University, Taiwan*.

Synchronized Production of Phenol and DMF through a Bimetallic Ni-Cu Catalyzed Dehydrogenation-Hydrogenation Coupling Process
Wei Li, *SINOPEC Beijing Research Institute of Chemical industry Yanshan Branch, China*.

Glycerol Oxidation Using Pt Supported on a Commercial HZSM-5
Chaline Detoni, Julia Reis and Mariana Souza, *Universidade Federal do Rio de Janeiro (UFRJ), Brazil*.

S-Doped g-C_3N_4 Coupled Ru/$SrTiO_3$:Rh As Z-Scheme Photocatalysts for Overall Water Splitting in the Presence of $[Co(bpy)_3]^{3+/2+}$ As Electron Mediator
Chechia Hu, *Chung Yuan Christian University, Taiwan*.

Microwave Catalytic Synthesis of Ammonia from Methane and Nitrogen
Xinwei Bai[1], Sarojini Tiwari[1], Yuxin Wang[1], Dushyant Shekhawat[2], Christina Wildfire[3] and Jianli Hu[1], *(1)West Virginia University, USA, (2)National Energy Technology Laboratory, DOE, USA, (3)National Energy Technology Laboratory, USA*.

Highly Reusable Nano Ru@C Catalyst for Hydrogenation of Aromatics to Value-Added Cyclohexane Derivatives
Huahua Zhao[1], Huanling Song[1], Jun Zhao[1], Jian Yang[1], Liang Yan[1] and Lingjun Chou[1,2], *(1)Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, China, (2)Suzhou Research Institute of LICP, Chinese Academy of Sciences, China*.

Gas Phase Alkylation of Benzene over Mesoporous Al-SBA-15 for a Continuous Production of Ethylbenzene
Venkata Dasireddy, Anish Johns and Ajayan Vinu, *Global Innovation Centre for Advanced Nano Materials, Australia*.

Does Hierarchical Treatments of H-Y Zeolite Matter for Bio-Oils FCC?
Yann Chapellière, Alain Tuel, Claude Mirodatos, David Farrusseng and Yves Schuurman, *CNRS, Université de Lyon1, France*.

Pr/M^{3+} (Y,La) Doped Ceria-Zirconia Oxides for Diesel Oxidation Catalysts
Simon Fahed[1,2], Alain Demourgues[3], Antoinette Boreave[1], Angel Caravaca[1], Sonia Gil[1], Philippe Bazin[2], Marco Daturi[2] and Philippe Vernoux[1], *(1)IRCELYON, France, (2)Laboratoire Catalyse et Spectrochimie, France, (3)Ecole Nationale Supérieure de Chimie et Physique de Bordeaux, France*.

Turning a Methanation Co Catalyst into an In–Co Methanol Producer
Anastasiya Bavykina[1], Irina Yarulina[1,2], Lieven Gevers[1], Adrian Ramirez[1], Alexey Pustovarenko[1], Alla Dikhtiarenko[1], Sergey Kozlov[1], Samy Oud-Chikh[1], Luigi Cavallo[1] and Jorge Gascon[1], *(1)King Abdullah University of Science & Technology, Saudi Arabia, (2)KAUST, Saudi Arabia*.

***In Situ* Spectroscopic Studies of the CuO_x/Gamma-Al_2O_3 catalysts for CO Oxidation**
Mingshu Chen, *Xiamen University, China*.

Combination of HC/ and NH_3/ SCR with HC Tolerant Cu Zeolites
Young Jin Kim[1], Young Woo You[2], Tae Sun Chang[1], Min Bum Park[3], Sung Bong Kang[4], Iljeong Heo[1] and In-Sik Nam[5], *(1)Korea Research Institute of Chemical Technology, Korea, Republic of (South), (2)Korea Advanced Institute of Science and Technology, Korea, Republic of (South), (3)Incheon National University, Korea, Republic of (South), (4)Gwangju Institute of Science and Technology (GIST), Korea, Republic of (South), (5)POSTECH, Korea, Republic of (South)*.

Constructing Stable and Highly Dispersed Noble Metal Clusters on Oxides By Reducing a Perovskite-Type Oxide
Siran Zhang, Wu Jin, Ruolin Sun and Yuan Liu, *Tianjin University, China*.

Impact of Pore Space Organization on Diffusion in Gamma-Alumina Catalyst Supports
Aleksandra Glowska[1,2], Elsa Jolimaître[1], Leonor Catita[1], Marc Fleury[1], Thibaud Chevalier[1] and Marc-Olivier Coppens[2], *(1)IFP Energies nouvelles, France, (2)University College London, United Kingdom*.

Ethyl Esters Transesterification Using Hybrid Silicas As Catalysts
Luana Paula and Dilson Cardoso, *Federal University of Sao Carlos, Brazil*.

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Lignin Catalytic Hydroconversion: A Combined Experimental and Kinetic Modeling Study
Junjie Pu[1,2], Isabelle Pitault[1], Melaz Tayakout[1], Christophe Geantet[2] and Dorothée Laurenti[2], *(1)Univ. Lyon, France, (2)University of Lyon / CNRS, France*.

Kinetic Modeling of Methane Dry Reforming Under Non-Stoichiometric Conditions
Prakash Ponugoti and Vinod Janardhanan, *Indian Institute of Technology Hyderabad, India*.

Non-Oxidative Methane Coupling on the Fe Single-Atom Catalyst: First-Principles-Based Microkinetic Analysis
Seok Ki Kim, *Korea Research Institute of Chemical Technology, Korea, Republic of (South)*.

Periodic DFT Study of the Opening of Fructose and Glucose Rings and the Further Conversion of Fructose to Trioses Catalyzed By M-BEA (M = Sn, Ti, Zr, or Hf)
Brian Montejo-Valencia[1] and Maria Curet-Arana[2], *(1)Universidad Ana G Mendez at Gurabo, USA, (2)University of Puerto Rico at Mayaguez, USA*.

CO_2 Reduction with Organic Photoredox Catalysts: Substituent Effects on Electron Transfer Rates & Donor-Acceptor Interactions
Shaama Mallikarjun Sharada and Kareesa Kron, *University of Southern California, USA*.

Low-Temperature Simultaneous Storage of NO and Hydrocarbon over Pd/SSZ-13 Catalysts: Characteristics of Adsorption and Release
Huawang Zhao[1,2], Xiaoyin Chen[1], Yongdan Li[2,3] and Johannes W. Schwank[1], *(1)University of Michigan, USA, (2)Tianjin University, China, (3)Aalto University, Finland*.

Insights on the Evolution of Pd Catalysts during Dry Reforming of Methane Reaction – a Modulation-Excitation Spectroscopy Approach
Tathiana Midori Kokumai[1], Danielle Gonçalves[2], Tanna E. R. Fiuza[2], Luke Keenan[1], Monica Amboage[1], Daniela Zanchet[2] and J. F. W. Mosselmans[1], *(1)Diamond Light Source, United Kingdom, (2)University of Campinas, Brazil*.

Noncontact Catalysis: Enabling Selective Ethylbenzene Oxidation with Au Cluster-Facilitated Cyclooctene Epoxidation
Anyang Peng[1], Mayfair C. Kung[1], Robert Brydon[1], Matthew Ross[1], Linping Qian[2], Linda J. Broadbelt[1] and Harold H. Kung[1], *(1)Northwestern University, USA, (2)Fudan University, China*.

Aluminum Alkyls As Highly Active Catalytic Chain Transfer Agents
Ivan Konstantinov, Sean Ewart, Teresa Karjala, Dan Baugh III and Sarat Munjal, *The Dow Chemical Company, USA*.

A Promising SCR deNO_x Technology Based on Zeolite Catalyst with Methanol As Reductant
Haijun Chen, Fei Han, Han Sun and Mengqi Yuan, *Nankai University, China*.

Low Temperature Dehydrogenation of Methylcyclohexane in Electric Field
Takuma Higo and Yasushi Sekine, *Waseda University, Japan*.

Regularly-Dispersed Single Ru Atom Stably on MgO (111) with Highly Peroxidase-like Activity
Jieru Zhang and Yung-Kang Peng, *City University of Hong Kong, Hong Kong*.

Chemical and Structural Effects of Silica in Iron-Based Catalysts and Its Promotion for DBT Hydrodesulfurization
Xinyue Zhang[1], Xuandong Liu[1], Lei Li[1], Bo Meng[2] and Baojian Shen[1], *(1)The Key Laboratory of Catalysis of CNPC, China, (2)State Key Laboratory of Heavy Oil Processing, China*.

Highly Active and Selective Bifunctional Catalyst for Direct Conversion of Syngas to Light Olefins
Peng Zhang, Fanhui Meng and Zhong Li, *Taiyuan University of Technology, China*.

Ni-Ga Bimetallic Catalysts Prepared from Layered Double Hydroxides for CO_2 Hydrogenation to Methanol
Yuhan Men, Ranjeet Singh and Paul Webley, *The University of Melbourne, Australia*.

Cobalt Carbide Nanoparticles on Carbon Supports As a Durable PEFC Electrode Catalyst for Oxygen Reduction Reaction
Atsushi Neya, Kanae Endo, Masafumi Nakaya, Mizuho Yabushita, Sachiko Maki, Kiyoshi Kanie and Atsushi Muramatsu, *Tohoku University, Japan*.

Capturing Dynamics of Atomically Dispersed Catalysts: A Multiscale Approach
Shaama Mallikarjun Sharada and Nicholas Humphrey, *University of Southern California, USA*.

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Catalytic Co-Pyrolysis of Cellulose and Linear Low-Density Polyethylene over MgO Impregnated Catalysts Having Different Acid-Base Property
Haewon Ryu[1], Young-Kwon Park[2] and Do Heui Kim[1], *(1)Seoul National University, Korea, Republic of (South), (2)University of Seoul, Korea, Republic of (South)*.

A Novel Bi-Functional Adsorption-Catalytic Oxidation MEL Zeolite for Non-Methane Hydrocarbon Removal from Cooking Oil Fumes
Qingjun Yu, Yongchao Feng, Xiaolong Tang and Honghong Yi, *University of Science and Technology Beijing, China*.

Characterization of Cu Species in SO_2-Poisoned Cu-SSZ-13: DFT-Based XANES Calculations and in Situ Wavelet EXAFS Transforms
Vitaly Mesilov[1], Susanna Bergman[1], Sandra Dahlin[2], Yang Xiao[1], Johanna Englund[3], Shibo Xi[4], Chunhua Tang[5], Magnus Skoglundh[3], Lars J. Pettersson[2] and Steven Bernasek[1], *(1)Yale-NUS College, Singapore, (2)KTH Royal Institute of Technology, Sweden, (3)Chalmers University of Technology, Sweden, (4)Institute of Chemical and Engineering Sciences, Singapore, (5)National University of Singapore, Singapore*.

Support Effects in Preferential Oxidation of C_3H_6 over Supported Vanadia Catalysts for PGM-Free TWC
Ryosuke Sakai[1], Kakuya Ueda[1], Junya Ohyama[2,3] and Atsushi Satsuma[1,3], *(1)Nagoya University, Japan, (2)Kumamoto University, Japan, (3)Kyoto University Elements Strategy Initiative for Catalysts and Batteries, Japan*.

Dry Reforming of Methane over Ni–MgO–$Ce_{(1-x)}Zr_{(x)}O_2$ catalysts
Hyun-Seog Roh, Beom-Jun Kim and Ho-Ryong Park, *Yonsei University, Korea, Republic of (South)*.

$MnFeO_x$ Mixed Oxide Catalyst for the Selective Catalytic Reduction of NO_x with NH_3 at Low Temperature
Qian Xu, Li Wang and Yun Guo, *East China University of Science and Technology, China*.

Plasmon-Enhanced Photothermal Reduction of CO_2 By Ag@Pr:CeO_2-Au/Cu Nanoparticles
Devin O'Neill, Yibin Bu, Annemarie Huijser and Guido Mul, *University of Twente, Netherlands*.

Bifunctional Metal/Acid Zeolites with Hierarchical Porosity As Catalysts in the Synthesis of Alkyl-Branched Fatty Acid Methyl Esters.
Jonathan Fabian Sierra Cantor[1], Olinda Gimello[2], Carlos Alberto Guerrero Fajardo[3], Francesco Di Renzo[1], Nathalie Tanchoux[1] and Corine Gérardin[1], *(1)Institut Charles Gerhardt Montpellier, France, (2)Univ Montpellier CNRS ENSCM, France, (3)Universidad Nacional de Colombia, Colombia*.

Mechanism Study of N_2O Reduction over Reduced Rh Ceria-Based Catalyst and Its Influence By the Presence of NO and O_2
Yixiao Wang[1,2] and Michiel Makkee[1], *(1)Delft University of Technology, Netherlands, (2)Idaho National Laboratory, USA*.

Catalytic Ammonia Decomposition for Hydrogen Production on Ni-Ru Supported on CeO_2
Ilaria Lucentini and Jordi Llorca, *Universitat Politecnica de Catalunya, Spain*.

Influence of Butane-O_2 Treatment of Ga/ZSM-5 for the Efficient Catalytic Cracking of *N*-Butane
Zenan Ni and Guiyuan Jiang, *China University of Petroleum Beijing, China*.

Catalytic Role of Superficial VO_x Species and Coke Deposited on Mesoporous MgO Replica in Oxidative Dehydrogenation of Ethylbenzene
Piotr Kustrowski, *Jagiellonian University, Poland*.

Fabrication of Core-Shell Active Sites on Hierarchical Porous Ce-Zr Oxide with Enhanced Catalytic Activity for Soot Oxidation
Jing Xiong, Jian Liu, Zhen Zhao and Yuechang Wei, *China University of Petroleum, China*.

Study on the Selective Oxidation of Methane over Highly Dispersed Molybdenum-Incorporated KIT-6 Catalysts
Pei Chen[1] and Zhen Zhao[1,2], *(1)China University of Petroleum, China, (2)Shenyang Normal University, China*.

Solid Catalyst with Ionic Liquid Layer Concept in Electrocatalysis: Oxygen Reduction Reaction on Non-Noble and Noble Metal Catalysts As Instructive Example
Gui-Rong Zhang, Michael George, Nicolai Schmitt, Kai Brunnengräber and Bastian Etzold, *Technische Universität Darmstadt, Germany*.

A Unique Method to Disperse Au Nanoparticles at Ultra-High Loading Via LDH Intercalation Chemistry
Bradley Wooler[1], Yi Du[1], Stuart Soled[2], Sal Miseo[2], Chris Kliewer[3] and Brian Weiss[4], *(1)ExxonMobil, USA, (2)ExxonMobil Research and Engineering, USA, (3)Exxonmobil Research and Engineering Company, USA, (4)ExxonMobil Research and Engineering Company, USA*.

Porous Mn-Based Oxides for Complete Ethanol and Toluene Catalytic Oxidation: Origin of Catalytic Activity
Shaohua Chen and Tiehong Chen, *Nankai University, China*.

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Methylal Synthesis from Methanol and Trioxane over Ion Exchange Resins
Raquel Pelaez, Pablo Marin and Salvador Ordóñez, *University of Oviedo, Spain*.

One-Pot Strategy for the Production of Mesitylene from Acetone By Combining Aldol Condensation and Dehydration-Cyclization Reactions
Jorge Quesada, Laura Faba, Eva Díaz and Salvador Ordóñez, *University of Oviedo, Spain*.

Determining the Active Sites for Catalytic-Dephosphorylation over CeO_2 surface
Zicong Tan and Yung-Kang Peng, *City University of Hong Kong, Hong Kong*.

Role of Benzofuran-Propylene Reactions in the Coke Formation on Acid Catalysts Used for Biomass Pyrolysis and Diels-Alder Reactions
Juan Gancedo, Laura Faba and Salvador Ordóñez, *University of Oviedo, Spain*.

Ultrathin LDHS Enriched-Vacancy Induced Localized Electron Confinement Pt Catalyst for Selective Hydrogenation of C=O
Chenglin Miao, Junting Feng and Dianqing Li, *Beijing University of Chemical Technology, China*.

Hydrotreatment of Palmitic Acid and Triglycerides over Supported Ni/Mo Bimetallic Catalysts for Biofuels
Po-Yi Lin[1], Chao-Wei Lee[1], Bing-Hung Chen[1], Roman G. Kukushkin[2] and Vadim A Yakovlev[2], *(1)National Cheng Kung University, Taiwan, (2)Boreskov Institute of Catalysis, Russian Federation*.

Tuning the Catalytic Performance of Co/Mg-La System for NH_3 Synthesis Via the Active Phase Introduction Method
Hubert Ronduda[1], Magdalena Zybert[1], Wojciech Patkowski[1], Aleksandra Tarka[1], Wioletta Raróg-Pilecka[1], Leszek Kępiński[2], Adam Sarnecki[3] and Dariusz Moszyński[3], *(1)Warsaw University of Technology, Poland, (2)Institute of Low Temperature and Structure Research Polish Academy of Sciences, Poland, (3)West Pomeranian University of Technology, Poland*.

Room Temperature Reactivity of Nitrous Oxide with Cerium Oxides Catalyzed By Transition Metals
Max Hiller, Xiaoqiao Zhang and Klaus Köhler, *Technical University of Munich, Germany*.

Boron Doped Ni: A Novel Catalyst for CO_2 Conversion Reactions, Inspired By the Mechanistic Differences between Ni and Ru
Ojus Mohan[1], Shambhawi Shambhawi[2], Alexei Lapkin[2] and Samir Mushrif[3], *(1)Nanyang Technological University, Singapore, (2)University of Cambridge, United Kingdom, (3)University of Alberta, Canada*.

Constructing Well-Defined Nanostructures for Heterogeneous Catalysis
Yifan Sun[1] and Sheng Dai[2], *(1)Oak Ridge National Laboratory, USA, (2)Oak Ridge National laboratory, USA*.

Exsolution of Cu Phyllosilicate-Derived Catalyst and Its Activity in Carboxylic Acid Hydrogenation
Thien Dien To[1], Cheng-Chieh Tu[1], Ya-Ju Tsou[1], Jyh-Fu Lee[2] and Yu-Chuan Lin[1], *(1)National Cheng Kung University, Taiwan, (2)National Synchrotron Radiation Research Center, Taiwan*.

Synthesis of Pd Confined MOFs As Catalyst for Hydrodesulfurization of Dibenzothiophene
Chunhua Wang[1], Xiang Li[2], Ying-Ya Liu[1] and Anjie Wang[1], *(1)Dalian University of Technology, China, (2)Tianjin University of Science &Technology, China*.

X-Ray Absorption Near Edge Structure Studies on Active Phase Structure of Ni-P/SiO_2 Catalyst for NOCM Reactions.
MD Harun AL Rashid, *Hokkaido University, Japan*.

Hydrothermally Stable Pt/Nb-Al_2O_3 As Efficient Catalyst for Hydrodeoxygenation of Diphenyl Ether to Liquid Fuels
Weixiang Guan and Changhai Liang, *Dalian University of Technology, China*.

Impact of OH Radical Generator Involvement in the Gas-Phase Radical Reaction Network on the Oxidative Coupling of Methane - a Simulation Study
Duanxing Li, Bhavin Siritanaratkul and Kazuhiro Takanabe, *The University of Tokyo, Japan*.

Perovskite-Type Oxynitride-Hydride As a Catalyst for Ammonia Synthesis
Masaaki Kitano, Jun Kujirai, Kiya Ogasawara, Tomofumi Tada and Hideo Hosono, *Tokyo Institute of Technology, Japan*.

Demonstration of Low-Temperature Toluene Degradation Mechanism on Hydrotalcite-Derived Oxides with Ultrasonic Intervention
Shunzheng Zhao and Honghong Yi, *University of Science and Technology Beijing, China*.

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Overall Water Splitting on a Particulate Photocatalyst with a Quantum Efficiency of Almost Unity
Tsuyoshi Takata[1], Junzhe Jiang[2], Yoshihisa Sakata[2], Mamiko Nakabayashi[3], Naoya Shibata[3], Vikas Nandal[4], Kazuhiko Seki[4], Takashi Hisatomi[1] and Kazunari Domen[1], *(1)Shinshu University, Japan, (2)Yamaguchi University, Japan, (3)The University of Tokyo, Japan, (4)National Institute of Advanced Industrial Science and Technology, Japan*.

Enhancement of VOCs Catalytic Activity over Pt Catalyst Supported on Mn-Based Spinel
Dong Cui, Qu Zhenping and Ren Yewei, *Dalian University of Technology, China*.

The Hydroisomerization of *N*-Hexane over Highly Selective Pd/ZSM-22 Bifunctional Catalysts: The Improvements of Metal-Acid Balance By Room Temperature Electron Reduction Method
Wei Wang, Tong Li, Zhaolu Feng, Guozhi Jia, Chunmu Guo and Wei Wu, *Heilongjiang University, China*.

Operation of a Rh/$Ce_{0.75}Zr_{0.25}O_{2-\Delta}$-η-$Al_2O_3$/FeCrAl Wire Mesh Honeycomb Catalytic Module in a Heavy Fuel Autothermal Reforming
Vladislav Shilov and Pavel Snytnikov, *Boreskov Institute of Catalysis, Russian Federation*.

Scaling Relations and Prediction of Transition State Energies in Zeolite Catalysis
Chuan-Ming Wang, Yang-Dong Wang and Zai-Ku Xie, *Sinopec Shanghai Research Institute of Petrochemical Technology, China*.

Nonoxidative Direct Conversion of Methane with Catalytic Surfaces
Seung Ju Han, Sungwoo Lee, Hyun Woo Kim, Seok Ki Kim and Yong Tae Kim, *Korea Research Institute of Chemical Technology (KRICT), Korea, Republic of (South)*.

Phenoxy-Imine Catalyst [(FI)$TiCl_3$]/MAO for Selective 1-Hexene Production: Exploring Side Products to Identify Polymerization Active Species
Hélène Olivier-Bourbigou[1], Lionel Magna[1], Pierre-Alain Breuil[1], Typhene Michel[1], Astrid Cordier[2], Vincent Monteil[2], Christophe Boisson[2] and Jean Raynaud[2], *(1)IFPEN, France, (2)Université Claude Bernard Lyon 1, France*.

Influence of Pre-Treatment on the Catalytic Performance of Ag/CeO_2 for Formaldehyde Removal at Low Temperature
Chun-Chang Ou[1], Chia-Han Chen[1], Ting-Shan Chan[2], Ching-Shiun Chen[3,4] and Soofin Cheng[1], *(1)National Taiwan University, Taiwan, (2)National Synchrotron Radiation Research Center, Taiwan, (3)Chang Gung University, Taiwan, (4)Chang Gung Memorial Hospital, Taiwan*.

Design of Ir-CoO@SiO_2 Nanoreactors with Ir-CoO Hybrid Cores and Mesoporous Silica Shells for Selective Hydrogenation of Substituted Nitroaromatics
Hongbo Yu, *Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences, China*.

A Comparative Study of Methylamines Synthesis over Zeolites RHO and PST-29
In-Sik Nam, Hwajun Lee and Suk Bong Hong, *POSTECH, Korea, Republic of (South)*.

Porous Oxide Nanotubes with Tunable Pore Size and Crystal Structure for Enhanced Photocatalytic Property Produced By Molecular Layer Deposition
Chaoqiu Chen and Yong Qin, *Institute of Coal Chemistry, Chinese Academy of Sciences, China*.

Total Oxidation of Propane and Toluene over Trace Zirconium Doped Co_3O_4 Catalysts
Guangtao Chai[1,2], Leonarda Francesca Liotta[3], Yanglong Guo[1] and Anne Giroir-Fendler[2], *(1)East China University of Science and Technology, China, (2)University of Lyon, France, (3)Istituto per lo Studio dei Materiali Nanostrutturati ISMN-CNR, Italy*.

Catalytic Aromatization of Biogenic Ketones via Aldol Condensation
Phillip Reif and Marcus Rose, *TU Darmstadt, Germany*.

Role of Metal Oxide Supports in NH_3 Decomposition over Ru Catalysts
Isao Nakamura and Tadahiro Fujitani, *National Institute of Advanced Industrial Science and Technology (AIST), Japan*.

Insight to Understanding of the Relationship between the Catalytic Activity and Structure of Zeolite in Benzene Ethylation
Galina Sadovska[1], Radim Pilar[1], Somayeh Rastegar[1], Jaroslava Moravkova[1], Alena Vondrova[1], Jana Pastvova[2] and Petr Sazama[2], *(1)J. Heyrovský Institute of Physical Chemistry of the CAS, v. v. i., Czech Republic, (2)J. Heyrovský Institute of Physical Chemistry of the CAS, Czech Republic*.

Methane Chlorination Using Zeolite Catalysts: Effects of Si/Al Ratios and Framework Types
Seungdon Kwon, Sunghyun Park and Kyungsu Na, *Chonnam National University, Korea, Republic of (South)*.

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Ammonia Synthesis and Decomposition over Novel Iron-Based Catalysts Derived from Crystalline Layered Double Hydroxide Precursors
Klaus Friedel Ortega[1], Denise Rein[1,2], Malte Behrens[1], Jan Folke[2], Holger Ruland[2] and Robert Schloegl[2,3], *(1)University of Duisburg-Essen, Germany, (2)Max Planck Institute for Chemical Energy Conversion, Germany, (3)Fritz Haber Instiute of the Max Planck Society, Germany*.

Conversion of Hydrous Bio-Ethanol to Renewable Liquid Chemicals and Gasoline Additive with Zn-Zr-O Catalyst: Effects of Water, Operation Conditions and Role of Surface Acidity-Basicity
Miron V. Landau, Hen Ohayon Dahan and Moti Herskowitz, *Ben-Gurion University of the Negev, Israel*.

First-Principles Study of the Strength of Brønsted Acid Sites on FER Zeolite : Effect of Al Content and Distributions
Hyoseok Kim[1], Myung-June Park[2] and Won Bo Lee[1], *(1)Seoul National University, Korea, Republic of (South), (2)Ajou University, Korea, Republic of (South)*.

Controlled Synthesis of MgO with Diverse Basic Sites and Its CO_2 Capture Mechanism Using in Situ Drifts Technique
Wanlin Gao, *Beijing Forestry University, China*.

Low-Temperature CO and C_3H_6 Oxidation on Pd/Ag-CeO_2 Catalyst
Yaeun SEO[1] and Kwan-Young Lee[2], *(1)KOREA UNIVERSITY, Korea, Republic of (South), (2)Korea University, Korea, Republic of (South)*.

Investigation on the Effect of Iron to Nitrogen Ratios in the Preparation of Rod-Type Fe-N/C Catalysts Toward Oxygen Reduction Reaction
Jongkyung Kim[1], Praveen Kolla[2], Sanjeev Mukerjee[2] and Chanho Pak[1], *(1)Gwangju Institute of Science and Technology, Korea, Republic of (South), (2)Northeastern University, USA*.

CuPt Bimetallic NPs on TiO_2 for Dehydrogenation of Methanol to Methyl Formate
Haifeng Zhang and Xuzhuang Yang, *Inner Mongolia University, China*.

Defect-Rich ZnNiTi-LDHs Anchored Pt Single Atom Catalyst for Efficient Photocatalytic Reduction of CO_2 with H_2O
Jiaxuan Fan, Junting Feng and Dianqing Li, *Beijing University of Chemical Technology, China*.

Hydrothermal Resistance of Pd-Doped Vs. Pd-Impregnated 30% $La_{0.7}Sr_{0.3}CoO_3/Al_2O_3$ Catalysts for LNT Applications
Jon Ander Onrubia, Beñat Pereda, Unai De-La-Torre and Juan Ramón González, *University of the Basque Country, Spain*.

Understanding of Zn Functions on Hydrothermal-Stability in High Active NH_3-SCR Catalyst: One-Pot Synthesized Cu&Zn-SSZ-13
Ruinian Xu[1], Ziyang Wang[2], Biaohua Chen[1], Chengna Dai[2], Ning Liu[1] and Jie Zhang[2], *(1)Beijing University of Technology, China, (2)Beijing University of Chemical Technology, China*.

Nitrogen- and Phosphorus-Codoped Carbon-Based Catalyst for Acetylene Hydrochlorination
Yuxue Yue and Jia Zhao, *Zhejiang University of Technology, China*.

Green Energy-Driven Continuous Flow Microreactor for Distributed Biomass Processing
Tai-Ying Chen, Montgomery Baker-Fales and Dionisios G. Vlachos, *University of Delaware, USA*.

Plasma Catalytic Dry Reforming of Methane: Screening of Catalytic Materials in a Coaxial Packed-Bed DBD Reactor
Jakob Afzali Andersen and Anker D. Jensen, *Technical University of Denmark, Denmark*.

Hydrogenation of Furfural over $CuOCeO_2/Al_2O_3$ in a Vapor Phase Flow Reactor
Michael Jackson[1], Mark White[2], Richard Haasch[3], Steve Peterson[1] and Judith Blackburn[1], *(1)NCAUR/ARS/USDA, USA, (2)Mississippi State University, USA, (3)University of Illinois Urbana Champaign, USA*.

Selective Oxidation of Isopropanol into Acetone over Au Cu / γ-Al_2O_3
Meng Guo and Jiguang Deng, *Beijing University of Technology, China*.

Evolution of Pd Species for the Conversion of Methane Under Operation Conditions
Chen Jianjun, Zhong Lin and Chen Yaoqiang, *Sichuan University, China*.

Recent Advances in Utilization of Flare Gases for Small-Scale Sources
Dmitriy Potemkin, Sergey Uskov, Alexey Shigarov, Pavel Snytnikov, Valeriy Kirillov and Vladimir Sobyanin, *Boreskov Institute of Catalysis, Russian Federation*.

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MoS_2 Thin Films As Catalysts for Photocatalytic CO_2 Reduction
Yi-Fan Huang[1], He-Yun Du[2], Li-Chyong Chen[2] and Kuei-Hsien Chen[1,2], *(1)Academia Sinica, Taiwan, (2)National Taiwan University, Taiwan*.

Development of Heterogeneous Rh Catalysts for a Single-Step Styrene Synthesis: Rh/SiO_2 and Rh/C
Zhongwen Luo, Colby Whitcomb, Nicholas Kaylor, Weihao Zhu, Robert J. Davis and T. Brent Gunnoe, *University of Virginia, USA*.

Influence of Melt-Phase, Hydroxyl Catalytic Environments on Cellulose Cracking to Anhydro-Oligomers and Monomeric Products
Vineet Maliekkal, Saurabh Maduskar, Matthew Neurock and Paul J. Dauenhauer, *University of Minnesota, USA*.

Encapsulated Nanoparticles in Monolithic Metal-Organic Frameworks for Methane Oxidation to Methanol
Da Shi[1], Alexandra Barnes[2], Graham J. Hutchings[2] and Andrew E.H. Wheatley[1], *(1)University of Cambridge, United Kingdom, (2)Cardiff University, United Kingdom*.

Boron Nitride Catalysts for Partial Oxidation of Methane
Leonardo Garro-Mena[1] and Keith Hohn[2], *(1)Kansas State University, USA, (2)Miami University, USA*.

Effect of Phosphorus-Modification of Titania Supports on the Iridium-Catalyzed Synthesis of Benzimidazoles
Han Yu[1], Kenji Wada[1], Tatsuhiro Fukutake[1], Qi Feng[1], Shinobu Uemura[1], Kyosuke Isoda[1], Tomomi Hirai[2] and Shinji Iwamoto[2], *(1)Kagawa University, Japan, (2)Gunma University, Japan*.

Structural Sensitivity of Ferric Molybdate in Catalytic Oxidation Reaction Despite an Amorphous Surface Layer.
Gabriel Hidalgo[1,2], Alissa Bouzeggane[1,2], Matteo Tonelli[1,2], Millet Jean-Marc[1,2] and Mimoun Aouine[1,2], *(1)Claude Bernard university LYON 1 CNRS, France, (2)Institut de Recherches sur la Catalyse et l'Environnement de Lyon (IRCELYON), France*.

Evaluating Acid and Metallic Site Location and Inter-Site Proximity in Pt/γ-Al_2O_3-Cl Bifunctional Catalysts
Ana Batista[1], Dorothea Wisser[2], Walid Baaziz[3], Leonor Catita[1], Fabrice Diehl[1], Céline Chizallet[1], Anne-Sophie Gay[1], Anne Lesage[2], Ovidiu Ersen[3] and Pascal Raybaud[1], *(1)IFPEN, France, (2)CRMN, France, (3)IPCMS, France*.

The Complex Role of the Molecular Environment on Light Olefin Diffusion in the MTO Process
Pieter Cnudde[1], Ruben Demuynck[1], Steven Vandenbrande[1], Michel Waroquier[1], German Sastre[2] and Veronique Van Speybroeck[1], *(1)Ghent University, Belgium, (2)Polytechnic University of Valencia, Spain*.

Understanding the Stability of Highly Active Catalysts for the Oxygen Evolution Reaction Using First-Principles Simulations
Abhinav S. Raman, Roshan Patel and Aleksandra Vojvodic, *University of Pennsylvania, USA*.

Effect of Magnesium Addition on Properties of Wustite Precursor for the Ammonia Synthesis Reaction
Artur Jurkowski and Zofia Lendzion-Bielun, *West Pomeranian University of Technology in Szczecin, Poland*.

Tuning Rhodium Shell Electronic and Geometric Structure with a Transition-Metal Carbide Core for Selective CO_2 Hydrogenation
Zhenshu Wang and Yuriy Roman, *Massachusetts Institute of Technology, USA*.

Reviving Inert Oxides for Electrochemical Water Splitting By Subsurface Engineering
Liang Zhang[1], Abhinav S. Raman[2] and Aleksandra Vojvodic[2], *(1)Tsinghua University, China, (2)University of Pennsylvania, USA*.

Transfer Hydrogenation from Glycerol over a Ni-Co/CeO_2 Catalyst: A Highly Efficient and Sustainable Route to Produce Lactic Acid
Zhenchen Tang, Huatang Cao, Yehan Tao, Hero Jan Heeres and Paolo Pescarmona, *University of Groningen, Netherlands*.

Modeling the Deactivation of a Commercial Ni/Al_2O_3 Catalyst for CO_2 Methanation in a Milli-Structured Fixed-Bed Exchanger-Reactor
Isabelle Champon[1,2,3], Alain Bengaouer[1], Albin Chaise[1], Sébastien Thomas[2] and Anne-Cécile Roger[2], *(1)CEA Grenoble, France, (2)ICPEES-ECPM UMR 7515, France, (3)ADEME, France*.

A Full Spectrum of Regeneration of Cu-Modified Beta Zeolite for Sustainable Production of High-Octane Gasoline
Qiyuan Wu, Anh To, Connor Nash, Daniel Dupuis, Jesse Hensley, Susan Habas and Daniel Ruddy, *National Renewable Energy Laboratory, USA*.

Catalytic Conversion of Biomass-Derived Phenolics to Fuel Range Liquid: An Experimental, Statistical and Kinetic Study
Gul Afreen and Sreedevi Upadhyayula, *Indian Institute of Technology Delhi, India*.

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Two-Step Continuous Flow Catalytic Process for the Synthesis of Pyrazines from Glycerol over Cu-Based Catalysts
Jaime Mazarío, Leen De Lange, Ramón Jiménez-Robles and Marcelo E. Domine, *Instituto de Tecnología Química (ITQ, UPV - CSIC), Spain*.

Olefin Methylation and Chain Initiators in the Methanol to Hydrocarbon Reaction over Iron Zeolites
Mark LaFollette and Raul F. Lobo, *University of Delaware, USA*.

Transition State and Product Diffusion Control By Polymer–Nanocrystal Hybrid Catalysts
Andrew Riscoe[1], Cody Wrasman[1], Andrew Herzing[2], Adam Hoffman[3], Aditya Menon[1], Alexey Boubnov[3], Maria Vargas[1], Simon Bare[3] and Matteo Cargnello[1], *(1)Stanford University, USA, (2)National Institute of Standards and Technology, USA, (3)SLAC National Accelerator Laboratory, USA*.

Plasmon-Driven Carbon-Fluorine (C(sp^3)-F) Bond Activation: Mechanistic Insights into Hot-Carrier-Mediated Pathways
Hossein Robatjazi[1] and Naomi J. Halas[2], *(1)University of California, Santa Barbara, USA, (2)Rice University, USA*.

Nickel-Palladium Phosphide Catalysts for the Selective Hydrogenation of Alkynes
Mark E. Bussell, Reilly Lynch, Ryan Hagmann and Jacob Schare, *Western Washington University, USA*.

Tuning Selectivity in the Oxidative Dehydrogenation of Ethane through Control over Non-Stoichiometric Oxygen Density
Praveen Bollini, *University of Houston, USA*.

NH^{2-} Vacancy Mediated Ammonia Decomposition on Calcium Imide Supported Ni Catalysts
Kiya Ogasawara, Masaaki Kitano and Hideo Hosono, *Tokyo Institute of Technology, Japan*.

Rhodium-Catalyzed Hydroformylation of Olefins with CO_2/H_2 As Syngas Surrogate
Kaimin Hua[1,2], Xiaofang Liu[2], Baiyin Wei[2,3], Hui Wang[1,2] and Yuhan Sun[2,3], *(1)University of the Chinese Academy of Sciences, China, (2)Shanghai Advanced Research Institute, Chinese Academy of Sciences, China, (3)School of Physical Science and Technology, Shanghai Tech University, China*.

Vapor-Phase Alkylation of Benzene with Ethylene over a Shaped Core-Shell Binder-Free ZSM-5 Catalyst
Zhenhao Shen[1,2], Hongmin Sun[1], Zhirong Zhu[2] and Weimin Yang[1], *(1)Sinopec Shanghai Research Institute of Petrochemical Technology, China, (2)Tongji University, China*.

Influence of Potassium Ions on Catalytic Activity of Au/Ceria-Zirconia in CH_4, C_2H_6, C_3H_8 and NO Oxidation in Presence of Water Vapour
Ewa Iwanek (nee Wilczkowska)[1], Leonarda Francesca Liotta[2], Giuseppe Pantaleo[2], Shazam Williams[3], Robin Hu[3], Krishelle Calilung[3], Marek Gliński[4], Zbigniew Kaszkur[5] and Don Kirk[6], *(1)Sheridan College, Canada, (2)Istituto per lo Studio dei Materiali Nanostrutturati ISMN-CNR, Italy, (3)DCL International Inc., Canada, (4)Warsaw University of Technology, Poland, (5)Polish Academy of Sciences, Poland, (6)University of Toronto, Canada*.

Breaking the Limit of Lignin Monomer Production *Via* the Cleavage of Interunit Carbon-Carbon Linkages
Lin Dong, Xiaohui Liu, Yong Guo and Yanqin Wang, *East China University of Science and Technology, China*.

Electrocatalytic Reductive Amination for Synthesis of Primary Amines
Zachary Schiffer and Karthish Manthiram, *Massachusetts Institute of Technology, USA*.

Density Functional Theory Study of Propane Dehydrogenation on Magnesium Oxide Doped with Different Zinc Content
Yu Ren, *China University of Petroleum(Beijing), China*.

Catalytic System Consisting of Palladium Catalysts and *N*-Alkylimidazole Ligands for Reductive Carbonylation of Nitrobenzene to Phenyl Isocyanate
Thanh Tung Nguyen[1,2], Anh Vy Tran[1,2], Hye Jin Lee[1,2], Jayeon Baek[2] and Yong Jin Kim[1,2], *(1)Korea University of Science and Technology (UST), Korea, Republic of (South), (2)Korea Institute of Industrial Technology (KITECH), Korea, Republic of (South)*.

Shape Selectivity in the Conversion of Hexadecane to Iso-Hexadecane over 10-Ring Zeolites: ZSM-22, ZSM-23, ZSM-35, ZSM-48, EU-1 and EU-1/ZSM-48
Miao Zhang, *Yantai University, China*.

Synergistic Catalysis of Cu-Co- and Cu-Fe-Mo_2c Ternary Nanohybrids for Direct Synthesis of Ethanol and Higher Alcohols from Syngas
Jia Liu, Gao Shan, Nan Liu, Xuelian Liang, Guoqing Liu and Youzhu Yuan, *Xiamen University, China*.

Design and Synthesis of Cycloplatinated Polymer Dots As Photocatalysts for Visible-Light-Driven Hydrogen Evolution
Chih-Li Chang, Li-Yu Ting, Wei-Cheng Lin, Chih-Chia Chung and Ho-Hsiu Chou, *National Tsing Hua University, Taiwan*.

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Highly Efficient VO_x/Nano-Al_2O_3 Catalyst for Oxidative Dehydrogenation of Ethylbenzene to Styrene Utilizing CO_2 As Soft Oxidant
Quanhua Wang, Shuwei Chen, Dongcheng Tan, Dahai Pan, Xiaoliang Yan and Ruifeng Li, *Taiyuan University of Technology, China*.

Catalytic Properties of Ni_3sn Intermetallic Nanoparticles for Methanol Decomposition
Ya Xu, Toshiyuki Hirano, Huixin Jin and Jianxin Zhang, *National Institute for Materials Science, Japan*.

Synthesis Routes to Bimetallic Ni-Fe Model Catalysts for Unravelling Promoter Effects in CO_2 Methanation
Hannah M. S. Augenstein, Lisa Groll, Thomas Burger, Olaf Hinrichsen and Klaus Köhler, *Technical University of Munich, Germany*.

Contribution of $[Co^{II}(H_2O)_2]_{1.5}[Co^{III}(CN)_6]$ Subsurfaces to Photocatalytic Water Oxidation
Yusuke Yamada, *Osaka City University, Japan*.

Effects of Plasma Stimulation on N_2 Activation for Ammonia Synthesis
Patrick Barboun[1], Craig Waitt[1], Prateek Mehta[1], David Go[1], Luke Daemen[2], William F. Schneider[1] and Jason Hicks[1], *(1)University of Notre Dame, USA, (2)Oak Ridge National Laboratory, USA*.

Size Effect of Iron in Fischer-Tropsch Synthesis: Particles with Medium Size Exhibiting the Optimal Selectivity and Stability
Qiang Chang[1,2], Junqing Yin[2], Chenghua Zhang[2,3], Xiaodong Wen[2,3], Yong Yang[2,3], Michael Claeys[1] and Yongwang Li[2,3], *(1)Catalysis Institute and c*change (DST-NRF Centre of Excellence in Catalysis), University of Cape Town, South Africa, (2)Institute of Coal Chemistry, Chinese Academy of Sciences, China, (3)Synfuels China Technology Co., Ltd., China*.

Study on Understanding of Organic Structure Directing Agent Free Synthesis of Al-Rich *BEA Zeolites
Radim Pilar, Galina Sadovska, Jana Pastvova, Jaroslava Moravkova, Dalibor Kaucky and Petr Sazama, *J. Heyrovský Institute of Physical Chemistry of the CAS, Czech Republic*.

Cyclic Alkane Metathesis with Grafted Metallocarbyne Complexes
Wiebke Wackerow, Laura Falivene, Manoja Samantaray, Luigi Cavallo and Jean-Marie Basset, *King Abdullah University of Science and Technology, Saudi Arabia*.

Encapsulated FeP Nanoparticles Boost the Carbon Layers for Oxygen Reduction Reaction in Acidic Media
Tiehong Chen, *Nankai University, China*.

Impact of HCHO on NH_3-SCR of NO_x over V_2O_5-WO_3/TiO_2 Catalysts
Anh Binh Ngo, Thanh Huyen Vuong, Hanan Atia, Ursula Bentrup, Jabor Rabeah, Udo Armbruster and Angelika Brueckner, *Leibniz Institute for Catalysis, Germany*.

Upgrading of Bio-Based Oils to Fuels
Christian Strebel[1], Jostein Gabrielsen[1], Ofei Mante[2] and David Dayton[2], *(1)Haldor Topsoe A/S, Denmark, (2)RTI International, USA*.

The Role of Hydrogen Transfer Reactions in Methanol-to-Propylene™: Kinetic Study and Process Intensification
Lin Lin[1], Felix Warnecke[2], Stephane Haag[1] and Hannsjoerg Freund[2], *(1)AIR LIQUIDE Forschung und Entwicklung GmbH, Germany, (2)Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany*.

Transformation of Carboxylic Acids to Aldehydes Via Orthoesters Using Pd- and Pt-Catalysts
Radhika Rao[1], Renat Kadyrov[2], Wynter Osminski[1], Konrad Moebus[2] and Bernd Jaeger[2], *(1)Resource Efficiency, Business Line Catalysts, USA, (2)Business Line Catalysts, Germany*.

Ion Mobility and Pore Structure in Fe Exchanged Zeolites
Joseph Palamara, Jeff Yang and Subramanian Prasad, *BASF Corporation, USA*.

Development of Hydroxyapatite-Carbon Composite Materials As Support for Cu-Based Electrocatalysts in CO_2 Reduction Reaction (CO2RR)
Michele Ferri[1], Sebastiano Campisi[1], Antonella Gervasini[1], Stefano Pierpaolo Marcello Trasatti[1], Pierangela Cristiani[2] and Plamen Atanassov[3], *(1)Università degli Studi di Milano, Italy, (2)Ricerca sul Sistema Energetico - RSE, Italy, (3)University of California Irvine, USA*.

Supported PdAu Nanocoral Catalysts for the Selective Direct Synthesis of Hydrogen Peroxide
Alexander Howe[1] and Jennifer Edwards[2], *(1)National University of Singapore, Singapore, (2)Cardiff University, United Kingdom*.

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Design and Synthesis of Conjugated Polymers for Visible-Light-Driven Hydrogen Evolution
Ho-Hsiu Chou, *National Tsing Hua University, Taiwan*.

Fourth Generation Synthesis of Solketal By Glycerol Acetalisation with Acetone: A Solar Light Photocatalytic Approach
Alberto Marinas, Jesús Hidalgo, Rafael C. Estevez-Toledano, Felipa M. Bautista and Francisco J. Urbano, *University of Cordoba, Spain*.

Accelerated Saddle Point Refinement with Sella
Eric Hermes, Khachik Sargsyan, Habib Najm and Judit Zádor, *Sandia National Laboratories, USA*.

The Role of Support in Indium-Based Catalysts for CO_2 Hydrogenation to Methanol
Clarita Y. Regalado Vera[1,2], Zheng Zhou[2,3], Lucun Wang[2], Narges Manavi[4], Bin Liu[4], Meng Zhou[1], Kara Stowers[3] and Dong Ding[2], *(1)New Mexico State University, USA, (2)Idaho National Laboratory, USA, (3)Brigham Young University, USA, (4)Kansas State University, USA*.

Methanol Synthesis in a High-Pressure, Multiphase Membrane Reactor
Fatemeh Zebarjad, Theodore. T Tsotsis, Sheng Hu, Xinshun Liu, Hao Li and Zhongtang Li, *University of Southern California, USA*.

Redesigning $Ce_XZr_{1-X}O_2$ Catalysts and the Impact on Methane Reforming
Behnam Safavinia, Changyi Jiang, Kerry Dooley and James Dorman, *Louisiana State University, USA*.

Understanding Catalyst Dynamics By Correlating Operando Concentration-, Temperature-, Spectroscopic- and Diffraction Profiles Measured By Using a Compact Profile Reactor
Birte Wollak[1], Oliver Korup[1], Michael Schmidt[2] and Raimund Horn[1], *(1)Hamburg University of Technology, Germany, (2)Reacnostics GmbH, Germany*.

Cu-Ni Particles Supported on Nano-Shaped Ceria for Methanol Decomposition Reaction
Daniel G. Araiza, Antonio Gómez-Cortés and Gabriela Díaz, *Instituto de Física, Universidad Nacional Autónoma de México, Mexico*.

Metal@Semiconductor Core-Shell Nanocrystals with Atomically Organized Interfaces for Efficient Hot Electron-Mediated Photocatalysis
Jia Liu, *Beijing Institute of Technology, China*.

Ensemble of Models for Catalytic Upgrading of CO_2 to Methanol over In_2O_3
Maximilian Cohen and Dionisios G. Vlachos, *University of Delaware, USA*.

Bifunctional Catalysis for the Valorization of CO_2 to Value-Added Hydrocarbons
Kang Cheng, Cheng Zhou, Xiaoliang Liu, Qinghong Zhang, Jincan Kang and Ye Wang, *Xiamen University, China*.

Dynamic Interplay between Metal Particles and Soft Matter Enabling High Selectivity and Suppressed Coking in Partial Hydrogenation
Minkee Choi, *Korea Advanced Institute of Science And Technology (KAIST), Korea, Republic of (South)*.

Ethanol Dehydrogenation to Acetaldehyde over Cu/g-Al_2O_3 and Cu/$ZnAl_2O_4$ Catalysts: Activity and Deactivation
Giovanni Pampararo[1], Gabriella Garbarino[1], Paola Riani[1], Maria Villa Garcia[2], Vicente Sanchez Escribano[2] and Guido Busca[1], *(1)University of Genova, Italy, (2)University of Salamanca, Spain*.

Structure and Solvation of Confined Water within Microporous Brønsted Acids and Consequences for Ethanol Dehydration Catalysis
Jason Bates, Brandon C. Bukowski, Jeffrey Greeley and Rajamani Gounder, *Purdue University, USA*.

Evaluation of Ir Synthesis Methods As Related to the Oxygen Evolution Catalysts
Himanshi Dhawan, *University of Alberta, Canada*.

Novel Silicate-Based Hollow Functional Spheres for Cyclohexene Oxidation
Mohammadreza Kosari[1,2], Abdul Majeed Seayad[1], Armando Borgna[1] and Hua Chun Zeng[2], *(1)Institute of Chemical and Engineering Sciences, A*Star, Singapore, (2)National University of Singapore, Singapore*.

Promoting Effect of Ge on Catalytic Performance of Pt/SiO_2 for Dehydrogenation of Propane to Propylene: Insights into Catalyst Structure, Kinetics and Reaction Mechanism
Sajjad Rimaz[1,2], Luwei Chen[1], Sibudjing Kawi[2] and Armando Borgna[1], *(1)Institute of Chemical and Engineering Sciences, A*Star, Singapore, (2)National University of Singapore, Singapore*.

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Stability of Supported Nanoclusters Vs. Single-Atom Catalysts Using Statistical-Learning and First-Principles Modeling
Yifan Wang[1], Yaqiong Su[2], Emiel J. M. Hensen[2] and Dionisios G. Vlachos[1], *(1)University of Delaware, USA, (2)Eindhoven University of Technology, Netherlands*.

Spinel-Structured Mn–Ni Nanosheet Catalysts with Good–Resistance to H_2O&SO_2 for NH_3–SCR of NO at Low Temperature
Fengyu Gao, Zaharaddeen Sani, Xiaolong Tang, Honghong Yi, Shunzheng Zhao, Qingjun Yu, Yuansong Zhou, Yiran Shi and Shuquan Ni, *University of Science and Technology Beijing, China*.

Mechanistic Understanding Cascade C-C Coupling and Self-Deoxygenation Reactions over Lewis Acid-Base Pairs
Houqian Li[1], Nicholas Jaegers[1,2], Junming Sun[1], Jian Zhi Hu[2] and Yong Wang[1,2], *(1)Washington State University, USA, (2)Pacific Northwest National Laboratory, USA*.

Highly-Active NiW Catalysts Supported on Nanostructured Materials for Deep Hydrodesulfurization
Tatiana E. Klimova, Rodrigo A. Ortega Domínguez and Luis J. Rodríguez Castillo, *Universidad Nacional Autónoma de México (UNAM), Mexico*.

The Impact of Phase Transitions on Propane Oxidation Studied By Operando Differential Scanning Calorimetry
Ezgi Erdem[1,2], Pierre Kube[2], Andrey Tarasov[2], Frank Rosowski[1,3], Robert Schlögl[1,2] and Annette Trunschke[2], *(1)Technical University Berlin, Germany, (2)Fritz Haber Institute of the Max Planck Society, Germany, (3)BASF SE, Germany*.

Engineering of Ruthenium-Iron Oxide Colloidal Heterostructures Leads to Improved Yields in CO_2 hydrogenation to Hydrocarbons
Aisulu Aitbekova[1], Emmett Goodman[1], Liheng Wu[1,2], Alexey Boubnov[2], Adam Hoffman[2], Simon Bare[2] and Matteo Cargnello[1], *(1)Stanford University, USA, (2)SLAC National Accelerator Laboratory, USA*.

Distribution of Al Atom on Different T Sites of Ferrierite Zeolite: Synthesis, Characterization and Application
Xiujie Li[1], Peng Guo[1], Zhiqiang Yang[2] and Xiangxue Zhu[1], *(1)Dalian Institute of Chemical Physics, China, (2)BP (China) Holdings Ltd, China*.

Catalytic Steam Gasification of Sugarcane Bagasse Powder for Hydrogen Rich Syngas Production
Prakash Aryal, Andrew Hoadley and Akshat Tanksale, *Monash University, Australia*.

Baeyer-Villiger Oxidation of Cylcohexanone to ε-Caprolactone over SCM-14 Zeolite
Xiangcheng Li and Weimin Yang, *Sinopec Shanghai Research Institute of Petrochemical Technology, China*.

Embedded Pt@CeO_2 Catalyst for Biogas Upgrading: Effect on Oxygen Mobility for Enhancing Carbon Removal Mechanism
André Marinho[1,2,3], Raimundo Crisostomo Rabelo-Neto[2], Florence Epron[3], Nicolas Bion[3], Fabio Toniolo[1] and Fábio Noronha[2], *(1)Federal University of Rio de Janeiro, Brazil, (2)National Institute of Technology, Brazil, (3)Institut de Chimie des Milieux et Matériaux de Poitiers (IC2MP), CNRS, Université de Poitiers, France*.

Surface Redox Etching of Ceria-Based Nanocatalysts By Liquid Phase Transmission Electron Microscopy
Jongbaek Sung, Baek Kyu Choi and Jungwon Park, *Seoul National University, Korea, Republic of (South)*.

Phase Transformation and Catalytic Performance of Iron-Based Catalysts for CO_2 Hydrogenation to Hydrocarbons
Jie Zhu[1], Guanghui Zhang[1], Chunshan Song[1,2] and Xinwen Guo[1], *(1)Dalian University of Technology, China, (2)Pennsylvania State University, USA*.

A New Strategy for Preparation of Ultrafine Confined Pt-Based Intermetallic As Highly Efficient ORR Catalyst
Weiyue Zhao and Shijun Liao, *South China University of Technology, China*.

Stability of Metal Atoms and Nanoparticles on Oxide-Supports By Metal Vapor Adsorption Calorimetry: Ag on TiO_2(100) and Ni on CeO_2(111)
John Rumptz, Zhongtian Mao, Ziareena Al-Mualem and Charles T. Campbell, *University of Washington, USA*.

Methanol to High Octane Gasoline within a Market-Responsive Biorefinery Concept Enabled By Catalysis
Daniel Ruddy, Jesse Hensley, Connor Nash, Eric Tan, Earl Christensen, Carrie Farberow, Frederick Baddour, Kurt Van Allsburg and Joshua Schaidle, *National Renewable Energy Laboratory, USA*.

CO_2 Cycloaddition to Styrene Oxide over Imidazolium Bromide-Functionalized MOF-545(Mn)
Kwangsun Yu, Pillaivar Puthiaraj and Wha-Seung Ahn, *Inha University, Korea, Republic of (South)*.

Effects of Thiol Ligand Adsorption on Electrocatalytic CO_2 Reduction on Gold
Xun Cheng, Yuxin Fang, John Flake and Ye Xu, *Louisiana State University, USA*.

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Impact of Ni/Mg Loadings on Dry Reforming Pt/Ceria-Zirconia Catalysts
Yetunde O. Sokefun, Babu Joseph and John N. Kuhn, *University of South Florida, USA*.

Preparation of Ni-Plated Catalysts By Electroless Plating Method for CO_2 Reforming and Partial Oxidation of Methane
Seunghyun Lee, Namheon Lee and Kyoung-Su Ha, *Sogang University, Korea, Republic of (South)*.

Reaction Mechanism of NO Oxidation over Co_3O_4 Catalysts with Different Shapes
Lei Ma, Xiaoyin Chen and Johannes W. Schwank, *University of Michigan, USA*.

Low Temperature Ethylene Oxidation over Pt/Silica: Role of Mesoporosity
Shazia Sharmin Satter, Kiyotaka Nakajima and Atsushi Fukuoka, *Hokkaido University, Japan*.

Design of Bimetallic Catalysts for Alkane Selective Dehydrogenation
Tao Wang[1] and Frank Abild-Pedersen[2], *(1)Stanford University, USA, (2)SLAC National Laboratory, USA*.

Decomposition of Formic Acid over HPW Supported on TiO_2 Catalysts for the Synthesis of Highly Pure Carbon Monoxide
Dong-Chang Kang[1], Hanna Kim[2], Dongpyo Kim[1] and Chae-Ho Shin[2], *(1)Pohang University of Science and Technology (POSTECH), Korea, Republic of (South), (2)Chungbuk National University, Korea, Republic of (South)*.

Tandem Catalytic Valorization of Xylose on Beta Zeolites: Dependence of Density and Location of Workable Lewis Acid Sites
Tiago L. Coelho, Bruna M. Souza, Elise M. Albuquerque and Marco A. Fraga, *Instituto Nacional de Tecnologia, Brazil*.

Influence of Active Site Density and Arrangement on the Kinetics of NO_x Selective Catalytic Reduction with NH_3 over Cu-CHA Zeolites
Siddarth Krishna[1], Casey Jones[1], Ishant Khurana[1], William F. Schneider[2], Jeffrey T. Miller[1], Fabio H. Ribeiro[1] and Rajamani Gounder[1], *(1)Purdue University, USA, (2)University of Notre Dame, USA*.

An Investigation of the Feasibility of Atomic Layer Deposition Overcoating on Industrial Catalysts
Zheng Lu[1], Arrelaine Dameron[2], Ryon Tracy[2], Chris Nicholas[3], Leigh M. Abrams[3], Paul Barger[3], Tao Li[1] and Christopher L. Marshall[1], *(1)Argonne National Laboratory, USA, (2)Forge Nano, USA, (3)Honeywell UOP, USA*.

CO Probe Molecule Based Characterization of Atomically Dispersed Rh on Oxide Supports
Chithra Asokan[1] and Phillip Christopher[2], *(1)University of California, Santa Barbara, USA, (2)University of California Santa Barbara, USA*.

Effect of the Nb Content on the Performance of Nb-Promoted Cu/Zn Catalysts for Methanol Synthesis from CO_2 Hydrogenation
Cássia Santana[1], Luiza Shine[1], Ricardo Passini[1], Ernesto Urquieta-González[1], Elisabete M. Assaf[2], Jose M. Assaf[1] and Janaina F. Gomes[1], *(1)Federal University of São Carlos, Brazil, (2)University of São Paulo, Brazil*.

The Optimum Particle Size for Cobalt-Based Fischer-Tropsch Synthesis
Michel van Etten, Ivo Filot and Emiel J. M. Hensen, *Eindhoven University of Technology, Netherlands*.

Capturing CO_2 from Air with Efficient K_2CO_3/Carbon Sorbents: Insights into Supports Effects and Reaction Kinetics
Nazila Masoud, Carlos Rodriguez, Tomas Haasterecht, van, Lars Kiewidt and J.H. (Harry) Bitter, *Wageningen University & Research, Netherlands*.

Elementary Steps in the Formation of Olefins from Surface Methoxy Groups in ZSM-5 and SAPO-34 Seen By Operando Infrared Microspectroscopy (OIMS)
Ivalina Minova[1], Santhosh Matam[2,3], Alex Greenaway[3,4], C. Richard A. Catlow[2,3,5], Mark Frogley[4], Gianfelice Cinque[4], Paul A. Wright[1] and R.F. Howe[6], *(1)University of St Andrews, United Kingdom, (2)Cardiff University and The UK Catalysis Hub at Harwell, Rutherford Appleton Laboratory, United Kingdom, (3)UK Catalysis Hub at Harwell, United Kingdom, (4)Diamond Light Source, United Kingdom, (5)University College London, United Kingdom, (6)University of Aberdeen, United Kingdom*.

Chinese Ink-Promoted Co-Assembly Synthesis of 3D Porous Framework-Structured Catalyst Composed of Nano MoC_x/C for Highly Efficient Hydrogen Evolution Reaction
Fan Xueliang[1] and Yi Tang[2], *(1)Fudan university, China, (2)Shanghai Key Laboratory of Molecular Catalysis and Innovative Materials and Laboratory of Advanced Materials, Fudan University, China*.

Furfural to BDO/THF – a Detailed Catalyst and Process Design
jean-Paul Lange, *Shell Global Solutions B.V., Netherlands*.

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Synthesis of Supported Pd/Au Dilute Limit Alloy Nanoparticles
Abolfazl Shakouri, Anhua Dong, Christopher T. Williams and John R. Regalbuto, *University of South Carolina, USA*.

Synthesis and Catalytic Properties of Hierarchically Structured ZSM-5 and TS-1 Zeolites with Intracrystalline Macropores
Tobias Weissenberger[1], Bastian Reiprich[2], Wilhelm Schwieger[2] and Marc-Olivier Coppens[1], *(1)University College London, United Kingdom, (2)University Erlangen-Nuremberg, Germany*.

PtRu Alloys for the Electrocatalytic Reduction of Nitrate
Zixuan Wang, Samuel Young, Bryan Goldsmith and Nirala Singh, *University of Michigan, Ann Arbor, USA*.

Synthesis of Supported Metal Nanoparticles Via Weak Interfacial Interactions
Kunlun Ding[1], David Cullen[2], Laibao Zhang[1] and Peng Zhai[1], *(1)Louisiana State University, USA, (2)Oak Ridge National Laboratory, USA*.

Intelligent Nonprecious Metal-Doped $SrTiO_3$ Catalysts for CH_4 Combustion
Zhenghong Bao[1], James Kammert[1], Jisue Moon[1], Felipe Polo-Garzon[1], Maria Rochow[1] and Zili Wu[1,2], *(1)Oak Ridge National laboratory, USA, (2)Oak Ridge National Laboratory, USA*.

A Comparative Study of the Activity and Hydrothermal Stability of Al-Rich Cu-SSZ-39 and Cu-SSZ-13
Yulong Shan[1], Yunbo Yu[2], Xiaoyan Shi[2] and Hong He[2], *(1)Chinese Academy of Sciences, China, (2)Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences, China*.

Enantioselective Hydrogenation of a-Phenylcinnamic Acids over a Chiral Cinchona Alkaloid-Modified Pd/C Catalyst: Kinetic Study
Yasuaki Okamoto[1], Takashi Sugimura[1], Morifumi Fujita[1], Takeshi Kubota[2] and Bokeun Kim[1], *(1)University of Hyogo, Japan, (2)Shimane University, Japan*.

***In Situ* Observation of Cu^+ Stabilization in a Shattuckite-like Catalyst for Ethanol Production**
Jiafeng Yu and Jian Sun, *Dalian Institute of Chemical Physics, Chinese Academy of Sciences, China*.

Selectivity Control in Propylene Oxidation over Bifunctional Gold Catalysts
Johan de Boed, Petra E. de Jongh and Baira Donoeva, *Utrecht University, Netherlands*.

Splitting of Molecular Oxygen for Selective Oxidation of Methane over Binuclear Transition Metal Ion Species Stabilized in Zeolite Matrix
Jiri Dedecek[1], Edyta Tabor[1], Kinga Mlekodaj[1], Mariia Lemishka[1,2], Hana Jirglova[1], Stepan Sklenak[1] and Zdenek Sobalik[1], *(1)J. Heyrovský Institute of Physical Chemistry of the CAS, Czech Republic, (2)University of PArdubice, Czech Republic*.

Highly Active and Selective Ga Sites in Zeolite BEA for Propane Dehydrogenation
Lingli Ni[1], Ricardo Bermejo de Val[1] and Johannes A. Lercher[1,2], *(1)Technical University of Munich, Germany, (2)Pacific Northwest National Laboratory, USA*.

Soft-Chemistry Assisted Strong Metal-Support Interaction on Designed Core-Shell Catalysts for Enhanced Selective Oxidation Activity
Camila Palombo Ferraz[1] and Robert Wojcieszak[2], *(1)Centrale Lille, France, (2)Centre National de la Recherche Scientifique (CNRS), France*.

Photocatalytic Water Splitting By Z-Schemes Employing Perovskite-Type Oxynitrides As Oxygen Evolving Photocatalysts
Hideki Kato, Ryosuke Aoyagi, Hiromu Kumagai and Masato Kakihana, *Tohoku University, Japan*.

Catalytic Partial Oxidation of Ethanol on Rh Coated Monoliths: Effect of Water Co-Feed on Temperature and Concentration Profiles.
Alessandra Beretta, Abdelrahman Mostafa, Veronica Piazza, Roberto Batista da Silva Junior and Gianpiero Groppi, *Politecnico di Milano, Italy*.

Precipitating Metal Nitrate Deposition of Amorphous Metal Oxyhydroxide Electrodes Containing Ni, Fe, and Co for Electrocatalytic Water Oxidation
Young Kyeong Kim, Jin Hyun Kim and Jae sung Lee, *Ulsan National Institute of Science and Technology, Korea, Republic of (South)*.

Impedance-Based *in Situ* Spectroscopy for Monitoring Mobile Active Sites in NH_3-SCR Zeolite Catalysts
Valentina Rizzotto[1], Peirong Chen[2] and Ulrich Simon[1], *(1)RWTH Aachen University, Germany, (2)South China University of Technology, China*.

The Science behind the Preparation of Well-Defined Colloidal Catalysts for Fundamental Studies, and Why It Matters
Matteo Cargnello[1], Alexander Holm[1], Kun-Che Kao[1], Rosadriana Zelaya[1], Emmett Goodman[1], Aaron Johnston-Peck[2] and Cody Wrasman[1], *(1)Stanford University, USA, (2)National Institute of Standards and Technology, USA*.

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A Facile Pathway of Fructose Dehydration on Two Adjacent Acid Sites with Their Cooperation
Nianhua Xue, Chenhai Song, Xia Yu, Luming Peng, Xuefeng Guo and Weiping Ding, *Nanjing University, China*.

Catalytically Reductive Amination of CO_2 with H_2
Xingchao Dai, Yajuan Wu and Feng Shi, *Lanzhou Insititute of Chemical Physics, China*.

NOx Reduction from Diesel Engines with a Ag-Pt/Al_2O_3 Catalyst Using H_2 Produced By Ethanol Steam Reforming.
Naomi N. González[1], José L. Contreras[1], Gustavo A. Fuentes[2], Marcos Pinto[1], Beatriz Zeifert[3] and Tamara Vázquez[1], *(1)Metropolitan Autonomous University-Azcapotzalco, Mexico, (2)Metropolitan Autonomous University-Iztapala, Mexico, (3)Instituto Politécnico Nacional, Mexico*.

Preparation and Photocatalytic Properties of Modified g-C_3N_4/BiOCl Composite Photocatalyst
Wu Lei, *Nanjing University of Science and Technology,, China; Nanjing University of Science and Technology,, China*.

Elucidating the Fundamental Mechanisms of Complex Reactions between Hydrogen Sulfide and Copper Oxide
Dante Simonetti[1], Sara Azzam[1], Adam Hoffman[2], Alexey Boubnov[2], Griffin Canning[3], Philippe Sautet[4], Tirso Lopez-Ausen[1] and Simon Bare[2], *(1)University of California-Los Angeles, USA, (2)SLAC National Accelerator Laboratory, USA, (3)University of New Mexico, USA, (4)University of California Los Angeles, USA*.

Atomically Dispersed Iron Catalyst on Mesoporous Silica Nanoparticle for Highly Selective and Active Benzene Oxidation to Phenol
Chung-Yuan Mou, *National Taiwan University, Taiwan*.

Synthesis and Characterization of Ni/Al_2O_3 for Carbon Nanofiber Formation from CO_2 Hydrogenation
You-Sheng Lin, Zhi-Min Cai, Cheng-Yan Tang and Kuen-Song Lin, *Yuan Ze University, Taiwan*.

Low Temperature Preparation of Hierarchical Catalysts with Simultaneous Generation of Microporous ZSM-5 and Mesoporous Silica By Gel Skeletal Reinforcement and Their Reactivity for Catalytic Cracking
Atsushi Ishihara[1], Haruna Oshimura[1], Kazuya Mori[1], Shinya Matsuura[1,2] and Tadanori Hashimoto[1], *(1)Mie University, Japan, (2)Mie Prefecture Industrial Research Institute, Japan*.

Selective Conversion of Cellulose to Hydroxyacetone and 1-Hydroxy-2-Butanone Using Sn-Ni Bimetal Catalysts
Haiyong Wang, Qiying Liu and Longlong Ma, *Guangzhou Institute of Energy Conversion, Chinese Academy of Sciences, China*.

Base Properties of Metal Oxide Clusters
Yu Fujiki[1], Vorakit Chudatemiya[1], Kanako Shibata[1], Mio Tsukada[1], Jun Hirayama[2] and Seiji Yamazoe[1], *(1)Tokyo Metropolitan University, Japan, (2)Kyoto University, Japan*.

Non-PGM VOC Oxidation Catalysts
Jin Hee Lee, *Korea Research Institute of Chemical Technology, Korea, Republic of (South)*.

Novel Doped Perovskite Catalysts – Enhancing Catalytic Activity By Tailored Exsolution of Nanoparticles
Lorenz Lindenthal, Janko Popovic, Raffael Rameshan, Thomas Ruh, Harald Summerer, Andreas Nenning, Alexander K. Opitz, Stefan Löffler and Christoph Rameshan, *Technische Universität Wien, Austria*.

Syngas Production Via Packed Bed Chemical Looping Reforming Using Ni and Fe Based Oxygen Carriers: An Experimental Comparison
Christopher de Leeuwe, Somkenechukwu Agbasi and Vincenzo Spallina, *University of Manchester, United Kingdom*.

Extracting Structural Information of Au Colloids at Ultra-Dilute Concentrations: Identification of Growth during Nanoparticle Immobilization.
George Tierney[1,2] and Peter Wells[2], *(1)UK Catalysis Hub, United Kingdom, (2)University of Southampton, United Kingdom*.

Simultaneous *In Situ* Study of Fischer-Tropsch Catalyst Series By XRD-CT
Jay Pritchard[1], Andrew M. Beale[1] and James Paterson[2], *(1)University College London, United Kingdom, (2)BP International, United Kingdom*.

Hydrogenation of CO_2 to Ethanol over Mesocatalyst Cu@Na-Beta
Weiping Ding, *Nanjing University, China*.

Mechanistic Studies of the Ethanol Oxidation over Au/TiO_2 Catalysts
Sotiria Mostrou[1], Mark A. Newton[1], Andreas Tarcevski[1], Andreas Nagl[2], Vitaly L. Sushkevich[3], Karin Foettinger[2] and Jeroen A. van Bokhoven[1,3], *(1)ETH Zürich, Switzerland, (2)Technical University Vienna, Austria, (3)Paul Scherrer Institute, Switzerland*.

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Multifunctional Cd/TiO_2 Catalyst for CO_2 Hydrogenation to Methanol - a Theoretical Perspective
Jittima Meeprasert, Guanna Li, Dapeng Sun and Evgeny Pidko, *Delft University of Technology, Netherlands*.

Efficient Catalytic Decomposition of Ozone Under Harsh Conditions over Cerium Doped Cryptomelane-Type Manganese Oxide (Ce-OMS-2) Catalysts
Li Yang[1,2], Jinzhu Ma[1,3,4] and Hong He[1,3,4], *(1)Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences, China, (2)Pingxiang University, China, (3)Institute of Urban Environment, Chinese Academy of Sciences, China, (4)University of Chinese Academy of Sciences, China*.

Tandem Oxidation Catalysis with Hybrid Oxidase-Gold Nanoparticle Materials
Joseph Brindle, Patrick Nelson, Chinmay Verma and Michael M. Nigra, *University of Utah, USA*.

Effect of Alkali Loading during Ethanol Steam Reforming on Pt/ZrO_2 Catalysts
Michela Martinelli[1], Caleb D. Watson[2], Jonathan D. Castro[2], Nour Alhraki[2] and Gary Jacobs[2], *(1)University of Kentucky, USA, (2)UTSA, USA*.

Cobalt Based Catalysts Supported on Alumina Modified By Zirconia for Effective Syngas Production By Dry and Bireforming of Methane
Sholpan Itkulova, Kirill Valishevskiy, Yerzhan Boleubayev and Galiya Zhubanysheva, *D.V. Sokolsky Institute of Fuel, Catalysis and Electrochemistry, Kazakhstan*.

Role of Ceria As Activators and Inhibitors in Electrochemical Reactions
Michal Bajdich, *SLAC National Laboratory, USA*.

Role of Electronic Properties of Active Metal in Alkene Oxidations with H_2O_2 over Groups 4 – 6 Substituted Catalysts
Zeynep Ayla, David Flaherty and Daniel Bregante, *University of Illinois at Urbana-Champaign, USA*.

CO_2 Electroreduction to C_{2+} Products on CuZn Oxide-Derived Electrodes: Shape or Roughness Factor-Dependence?
Alisson Marques da Silva[1,2], Stefan Raaijman[2], Jose M. Assaf[1], Janaina F. Gomes[1] and Marc Koper[2], *(1)Federal University of São Carlos, Brazil, (2)Leiden University, Netherlands*.

Bifunctional CoS_2/$CoFeS_2$/CNT Nanohybrid Electrocatalyst for Oxygen Reduction and Oxygen Evolution Reaction
Jae-eun Jeon[1,2], Kyoung Ryeol Park[1,2], Nuri Oh[1] and Sungwook Mhin[2], *(1)Hanyang university, Korea, Republic of (South), (2)Korea Institute of Industrial Technology (KITECH), Korea, Republic of (South)*.

Tailoring MgO Surface Facets for Ketone Condensation - Understanding the Active Surface and Water Stability
Xiangchen Huo[1], Davis Conklin[1], Raiven Balderas[2], Ryan Richards[1,2], Vassili Vorotnikov[1], Mingxia Zhou[3], Rajeev S. Assary[3], Kinga A. Unocic[4], Stephen Purdy[4], Peter Metz[4], Katharine Page[4], Zhenglong Li[4] and Derek Vardon[1,2], *(1)National Renewable Energy Laboratory, USA, (2)Colorado School of Mines, USA, (3)Argonne National Laboratory, USA, (4)Oak Ridge National Laboratory, USA*.

Effect of Conduction Band Potential on Hydrogen Evolution over Gold Loaded Plasmonic Photocatalyst
Eri Fudo[1], Atsuhiro Tanaka[1,2] and Hiroshi Kominami[1], *(1)Kindai University, Japan, (2)Japan Science and Technology Agency (JST), Japan*.

Catalytic Materials for Low Concentration VOCs Removal through "Storage – Regeneration" Cycling
Bingbing Chen and Chuan Shi, *Dalian University of Technology, China*.

Promoter Effect of Boron on Iron Based Fischer-Tropsch Synthesis Catalyst: A DFT Study
Huabo Zhao, Zhuowu Men and Quan Lin, *national Institute of clean and low-carbon energy, China*.

Studies on Oxidative Dehydrogenation of Propane to Propylene in the Presence of HCl Catalyzed By CeO_2-Based Catalyst
Qinghong Zhang, Jincan Kang and Ye Wang, *Xiamen University, China*.

A Multi-Functional Catalyst/Oxygen Separation Agent for Redox Oxidative Dehydrogenation of Ethylbenzene to Styrene with Exceptional Yields
Xing Zhu[1,2], Yunfei Gao[1], Xijun Wang[1], Junchen Liu[1], Vasudev Pralhad Haribal[1] and Fanxing Li[1], *(1)North Carolina State University, USA, (2)Kunming University of Science and Technology, China*.

The Enhancement of Photocatalytic Performance through the Synergistic Effect between Rare Earth Type Double Perovskite La_2NiMnO_6 and ZnO
Zehua Jin, Ye Yang, Jianan Hu, Yaqin Bai and Ruisheng Hu, *Inner Mongolia University, China*.

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Experimentally Measurable Surface *D* Charge As a Descriptor for Catalyst Activity
Yafei Sun, Xiaojuan Zhu and Ying Wan, *Shanghai Normal University, China*.

Transparent Ta_3N_5 Photoanodes for Efficient Oxygen Evolution from Water in the Tandem Cell Configuration
Yudai Kawase, Tomohiro Higashi, Tatsuya Shinagawa, Kazunari Domen and Kazuhiro Takanabe, *The University of Tokyo, Japan*.

Synthesis of Zirconium Containing Zeolite and Its Catalytic Application
Willie Yang[1], Ryota Osuga[1], Junko N. Kondo[1] and Toshiyuki Yokoi[2], *(1)Tokyo Institute of Technology, Japan, (2)4259 Nagatsuta, Midori-ku, Japan*.

Study on the Support Effect of the Supported Manganese Oxide Nanocluster Catalysts By XAFS and XPS
Kyoko Nakamura[1], Pierre Eloy[2], François Devred[2], Eric Gaigneaux[2], Takayoshi Hara[1], Shogo Shimazu[1] and Nobuyuki Ichikuni[1], *(1)Chiba University, Japan, (2)Université Catholique de Louvain, Belgium*.

Toluene Methylation By Methyl Mercaptan and Methanol over Zeolites
Vasile Hulea, *Ecole Nationale Supérieure de Chimie de Montpellier, France*.

Dehydrogenative Coupling between Alkane and Benzene over Montmorillonite Catalyst
Moe Takabatake[1], Masayuki Nambo[1], Yuichi Manaka[1,2] and Ken Motokura[1,3], *(1)Tokyo Institute of Technology, Japan, (2)National Institute of Advanced Industrial Science and Technology, Japan, (3)JST PRESTO, Japan*.

Hydrodeoxygenation of Aryl Carboxylic Acids Via Decarboxylation on Pd/C Catalyst
Fuli Deng, Yue Liu, Erika Ember, Andreas Jentys and Johannes A. Lercher, *Technical University of Munich, Germany*.

Porous Double-Shell $CdS@C_3N_4$ Octahedron Derived By in situ Supramolecular Self-Assembly for Enhanced Photocatalytic Activity
Lang Chen, *Hunan University, China*.

Hierarchical Heterostructured Nickel Foam-Supported Co_3S_4 Nanorod Arrays Embellished with Edge-Exposed MoS_2 Nanoflakes for Enhanced Alkaline Hydrogen Evolution Reaction
Ouwen Peng and Chun Cheng, *Southern University of Science and Technology, China*.

Effect of K on Cobalt-Based Fischer-Tropsch Catalyst – an Experimental and Theoretical Study
Ljubiša Gavrilović[1], Ingeborg Helene Svenum[1,2], Qingjun Chen[3], Eirik Østbye Pedersen[1], Joakim Tafjord[1], Jia Yang[1], De Chen[1], Hilde Johnsen Venvik[1], Anders Holmen[1] and Edd A. Blekkan[1], *(1)Norwegian University of Science and Technology, Norway, (2)Sintef, Norway, (3)Chinese Academy of Sciences, China*.

Nanowire Based Materials for Designing Coke Resistant, Dry Methane Reforming Catalysts
Mahendra Sunkara[1], Apolo Nambo[1], Siva Kumar Vasireddy[2], Juan He[2] and Jacek Jasinski[1], *(1)University of Louisville, USA, (2)Advanced Energy Materials, LLC, USA*.

HDO of Phenol over Copper and Molybdenum Catalysts
Débora Dionizio[1], Gilles Berhault[2], Priscilla de Souza[3] and Cristiane Henriques[1], *(1)Universidade do Estado do Rio de Janeiro, Brazil, (2)University of Tunis El Manar, Tunisia, (3)Universidade Federal do Rio de Janeiro, Brazil*.

Hybrid Catalysts with Enhanced C_3H_6 Resistance for NH_3-SCR of NO_x
Qi Zhao and Chuan Shi, *Dalian University of Technology, China*.

Mechanism for CO_2 Hydrogenation to Methanol over Cu-ZnO-ZrO_2 Catalyst
Kongzhai LI, *Kunming University of Science and Technology, China*.

Support Engineering on the Catalytic Properties of Supported Single Metal Atom Catalyst
XiaoYing Sun and Zhen Zhao, *ShenYang Normal University, China*.

The Remarkable Performance of Ammonia Selective Catalytic Reduction of NO_x over Copper-Exchanged SSZ-52 Catalysts
Li Rui and Jiang Jiuxing, *Sun Yat-sen University, China*.

Facile Fabrication of Nanosheet-Assembled $MnCoO_x$ Hollow Flower-like Microspheres As Highly Effective Catalysts for the Low-Temperature Selective Catalytic Reduction of NO_x By NH_3
Xiaolong Tang and Yiran Shi, *University of Science and Technology Beijing, China*.

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Kinetic Understanding of the Role of Hydrogen in Branched Ni Growth and High Efficient Hydrogenation of Acetone
Xiaolei Wang[1], Ning Liu[2], Chengna Dai[2], Ruinian Xu[2], Bin Wu[2], Gangqiang Yu[2] and Biaohua Chen[2], *(1)Beijing University of Chemical Technology, China, (2)Beijing University of Technology, China*.

Industrial Research on Catalysis at Diamond Light Source
Anna B. Kroner[1], Elizabeth J. Shotton[1], Miren Agote Aran[1,2,3], Yaroslav Odarchenko[2,3], Andrew M. Beale[2,3], Paul Webb[4], Georg Held[1], Timothy I. Hyde[5] and Paul Collier[5], *(1)Diamond Light Source Ltd., United Kingdom, (2)University College London, United Kingdom, (3)Research Complex at Harwell, United Kingdom, (4)The University of St Andrews, United Kingdom, (5)Johnson Matthey Technology Centre, United Kingdom*.

Rhodium-Catalyzed Hydroaminomethylation of 1-Decene in an Aqueous Multiphase System with Nonionic Surfactants
Ariane Weber and Reinhard Schomäcker, *Technical University Berlin, Germany*.

Cobalt Ferrite Nanoparticles As an Effective Source for Catalytic CO_2 Hydrogenation to Produce High Value-Added Chemicals
Kwang Young Kim, Hojeong Lee, Woo Yeong Noh, Kwangjin An and Jae sung Lee, *Ulsan National Institute of Science and Technology(UNIST), Korea, Republic of (South)*.

Green Route for the Fabrication of Zinc Oxide Nanostructures and Its Photocatalysis Application in Water Purification
Abdulaziz Bagabas, *King Abdulaziz City for Science and Technology (KACST), Saudi Arabia*.

Structuring Zeolite Beta Catalysts into Macroscopic Beads with Hierarchical Porosity
Zahra Asgarpour[1] and Paolo Pescarmona[2], *(1)1981, Netherlands, (2)University of Groningen, Netherlands*.

O_2 Interaction Onto Ceria-Praseodymia Mixed Oxides Studied with Pulse Experiments Using Isotopic $^{18-18}O_2$
Juan Carlos Martínez-Munuera[1], Marina Cortes-Reyes[2], Javier A. Giménez-Mañogil[1] and Avelina García-García[1], *(1)University of Alicante, Spain, (2)University of Malaga, Spain*.

High-Density Isolated Fe_1O_3 Sites on a Single-Crystal Cu_2O (100) Surface for CO Oxidation
Chunlei Wang, *KTH Royal institute of technology, Sweden*.

Kinetic Expression for Optimal Catalyst Electronic Configuration: The Case of Ammonia Decomposition
Nigora Turaeva[1], Rebecca Fushimi[2] and Gregory Yablonsky[3], *(1)Webster University, USA, (2)Idaho National Laboratory, USA, (3)Washington University in St. Louis, USA*.

Unravelling the Role of Reaction Conditions and Electrocatalyst Properties on the Electrochemical Reduction of 5-Hydroxymethylfurfural to 2,5-Bis(hydroxymethyl)Furan
Giancosimo Sanghez de Luna[1], Juan Velasco Vélez[2], Phuoc Hoang Ho[1], Alice Lolli[1], Giuseppe Fornasari[1], Stefania Albonetti[1] and Patricia Benito[1], *(1)University of Bologna, Italy, (2)Fritz-Haber-Institut der Max-Planck-Gesellschaft, Germany*.

Development of Novel Double Heterojunction Photocatalysts: Study of Their Photocatalytic Activity Under UV and Visible Light
Jose-Alfonso Pinedo-Escobar[1], Cristina-Jared Carrillo-Martínez[2] and Israel Carrillo[3], *(1)Univesidad Autónoma de Zacatecas, Mexico, (2)Instituto Politécnico Nacional, Mexico, (3)Universidad Autónoma de Zacatecas, Mexico*.

Room Temperature CO Oxidation over Nobel Metals Incorporating TUD-1 Mesoporous Silica
Mohamed Hamdy and Badria Al-Shehri, *King Khalid University, Saudi Arabia*.

$LaCo_{1-X}Fe_xO_3$ Perovskites for CO-PROX Reaction and the Effect of Pt Addition in the Reducibility of the B-Site
Tanna E. R. Fiuza, Leonardo Sousa, Danielle Gonçalves, Igor Gomes and Daniela Zanchet, *University of Campinas, Brazil*.

Structure-Activity Differences in Small Pore Zeolites for SCR-NH_3
Gabriela I. Hernández-Salgado and Gustavo A. Fuentes, *Universidad Autónoma Metropolitana-Iztapalapa, Mexico*.

Controlling CO_2 Reduction through Molecular Affinity on Rh Single Atom and Rh Clusters
Yifeng Zhu, Janos Szanyi, Jian Zheng, Libor Kovarik, Oliver Y. Gutierrez, John Fulton and Johannes Lercher, *Pacific Northwest National Laboratory, USA*.

Controlling Reaction Networks Via *in Situ* Tuning of Atomic Geometries in PdAu/SiO_2 Catalysts
Mengyao Ouyang[1], Alexey Boubnov[2], Adam Hoffman[2], Georgios Giannakakis[1], Simon R. Bare[2], E. Charles H. Sykes[1] and Maria Flytzani-Stephanopoulos[1], *(1)Tufts University, USA, (2)SLAC National Accelerator Laboratory, USA*.

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Insights into KOAc-Promoted PdAu/SiO_2-Catalyzed Vinyl Acetate Synthesis Using *in Situ* XRD and DRIFTS
Hunter Jacobs[1], Welman Curi Elias[1], Kimberly Heck[1], Justin Dodson[2] and Michael S. Wong[1], *(1)Rice University, USA, (2)Celanese Corporation, USA*.

Ab Initio Study of the Nitrogen Reduction Reaction on Transition Metal Doped $BaZrO_3$
Colin Lehman and Aleksandra Vojvodic, *University of Pennsylvania, USA*.

Fine-Tuning Bulk Oxygen Vacancy Population and Defect Mobility in Precious Metal-Free Hybrid Perovskites Allow Superior Performance in CO Oxidation and NOx Oxidation
Kerem Emre Ercan[1], Zafer Say[1], Merve Kurt[1], Mustafa Karatok[2] and Emrah Ozensoy[1], *(1)Bilkent University, Turkey, (2)Harvard University, USA*.

Selective Valorization of Lignin to Phenol
Yuhe Liao and Bert F. Sels, *KU Leuven, Belgium*.

Nanoparticle Synthesis Solvent Regeneration for Reuse
Cody Wrasman and Matteo Cargnello, *Stanford University, USA*.

Biomass Ex-Situ CFP: A Mo_2C Case Study to Evaluate If Trends in Model Compound Reactivity Translate to Real Biomass Feeds
Calvin Mukarakate, Kellene Orton, Kristiina Iisa, Richard French, Connor Nash, Frederick Baddour and Joshua Schaidle, *National Renewable Energy Laboratory, USA*.

Methane Oxidation for O_2 Removal from Methane (Landfill/Biogas) – a Comparison Study of Pt, Pd and Pd/Pt Catalysts
Zhongyuan Dang and Greg Cullen, *Clariant Corporation, USA*.

$Mn_xCe_{1-X}O_6$/3DOM-m SiO_2 Catalysts: Easy Preparation and Super Catalytic Performance for Soot Combustion
Xuehua Yu[1], Lanyi Wang[2], Di Yu[1], Maozhong Chen[1], Ruidan Wang[1,2] and Zhen Zhao[1,2], *(1)Shenyang Normal University, China, (2)China University of Petroleum-Beijing, China*.

Unusual Selectivity in Hydrogenative Conversion of Methylcyclopentane over SOD-Encapsulated Pt Nanoparticles
Ningyue Lu, Hongyan Wang, Xiaoliang Yan, Binbin Fan and Ruifeng Li, *Taiyuan University of Technology, China*.

DFT Study for Oxygen/Hydrogen Evolution Mechanism on Binary and Ternary Metal-Based Electrodes
Hyeonjung Jung[1] and Jeong Woo Han[2], *(1)Pohang University of Science and Technology, Korea, Republic of (South), (2)Pohang University of Science and Technology (POSTECH), Korea, Republic of (South)*.

Aqueous Hydrogenation Mechanism of C_4-C_6 Dicarboxylic Acids on Re-Ir/C Catalyst
Xin Di, Chuang Li and Changhai Liang, *Dalian University of Technology, China*.

Controlling Support Reducibility in Pd-Loaded CeO_2 for Enhanced Water-Gas Shift Reaction
Myeong Gon Jang and Jeong Woo Han, *Pohang University of Science and Technology (POSTECH), Korea, Republic of (South)*.

Catalytic Carbonylation Via Heterobimetallic Catalysis
Yanwei Cao, Jian-Gong Yang, Chaoren Shen, Yong Chen, Chungu Xia and Lin He, *Chinese Academy of Sciences, China*.

Effect of Extended Oxidation on Regeneration of Pt-Sn/Al_2O_3 Catalyst for Propane Dehydrogenation
Hyoung Lim Koh, *Hankyong National University, Korea, Republic of (South)*.

Insight into Atomic Scale Structure-Activity Relationships of Defective Manganese Oxides Toward Vinyl Acetate Catalytic Oxidation
Yonggang Sun[1,2], Yulong Ma[1] and Zhengping Hao[2], *(1)Ningxia University, China, (2)University of Chinese Academy of Sciences, China*.

Dilute Pd/Au Alloys for Hot Electron-Mediated Catalytic Reaction
Hyosun Lee[1,2], Cody Wrasman[2], Emmett Goodman[2] and Matteo Cargnello[2], *(1)Korea Institute of Industrial Technology (KITECH), Korea, Republic of (South), (2)Stanford University, USA*.

The Rational Design of Perovskite-Supported Nanoparticle Catalysts
Tu Nguyen[1], Mariyah Bandukwala[1], Mingjie Xu[2], Xiaoqing Pan[2] and Kandis Leslie Abdul-Aziz[1], *(1)University of California, Riverside, USA, (2)University of California, Irvine, USA*.

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Insights into the Sites and Mechanism for the Electrochemical Birch Reduction Reaction
Sagar Udyavara[1], Byron Peters[2], Kevin Rodriguez[2], Solomon Reisberg[2], Sebastian Biel[2], David Hickey[3], Yu Kawamata[2], Kevin Klunder[3], Timothy Gorey[3], Scott Anderson[3], Shelley Minteer[3], Phil Baran[2] and Matthew Neurock[1], *(1)University of Minnesota, USA, (2)Scripps Research, USA, (3)University of Utah, USA*.

Modified Active Ni/γ-Al_2O_3 Catalysts for Partial Oxidation of Methane: Effect of the Support Pre-Treatment and Transition Metal Dopants
Abbas Khaleel, Sheikh Jobe, Mo'ath Hasan and Sulaiman Al-Zuhair, *United Arab Emirates University, United Arab Emirates*.

Dehydration of Glycerol into Acrolein over WO_3/Al_2O_3 Catalysts
Takeshi Aihara[1], Katsuya Asazuma[1], Hiroki Miura[1,2] and Tetsuya Shishido[1,2], *(1)Tokyo Metropolitan University, Japan, (2)Kyoto Univrersity, Japan*.

High Stable Performance of Alkane Dehydrogenation over Transition Metal-Based Catalyst Under Co-Feeding H_2S
Ryo Watanabe, Yuta Yoda, Nozomu Hirata and Fukuhara Choji, *Shizuoka University, Japan*.

Design of Catalytic Redox Cycles Using Novel Rate Diagram
Kumar Ranjan Rout, De Chen, Hongfei Ma, Yanying Qi, Yalan Wang, Endre Fenes and Jithin Gopakumar, *Norwegian University of Science and Technology, Norway*.

Bidentate Carboxylate Linked TiO_2 with NH_2-MIL-101(Fe) Photocatalyst: A Conjugation Effect Platform for High Photocatalytic Activity Under Visible Light Irradiation
Ma Yuwei, Hai Guangtong, Li Rongjie and Dong Wenjun, *University of Science and Technology Beijing, China*.

Effect of VO-Porphyrin in Asphaltenes on the Slurry Phase Hydrocracking of Vacuum Residue
Donghun Lee, Ki-Duk Kim and Yong-Kul Lee, *Dankook University, Korea, Republic of (South)*.

Direct Decomposition of NO into N_2 and O_2 over Copper Doped $Ba_3Y_4O_9$ Catalyst
Siman Fang, Atsushi Takagaki and Tatsusmi Ishihara, *Kyushu University, Japan*.

Glucose Hydrothermal Conversion Assisted By Photocatalysis with Commercial Titanium Dioxide (TiO_2)
Insaf Abdouli, Marion Eternot, Frederic Dappozze, Nadine Essayem and Chantal Guillard, *University Lyon, University Claude Bernard, CNRS, IRCELYON, UMR5256, France*.

Primary, Secondary, and Tertiary Silanamine Sites Formed on Nitrided SBA-15 for Knoevenagel and Aldol Condensations
Takahiko Moteki, Yuuki Koga and Masaru Ogura, *The University of Tokyo, Japan*.

Analysis of the Outer Atomic Layer – Low Energy Ion Scattering for Catalysis Applications
Thomas Grehl[1], Philipp Brüner[1] and Hidde H. Brongersma[1,2], *(1)IONTOF GmbH, Germany, (2)Eindhoven University of Technology, Netherlands*.

Lithium-Induced Activation of Catalytic Functions in Selective Methane Oxidation
Younhwa Kim[1], Kyung Rok Lee[1], Chyan Kyung Song[1], Jungwon Park[1], Hyunjoo Lee[2] and Jongheop Yi[1], *(1)Seoul National University, Korea, Republic of (South), (2)Korea Advanced Institute of Science and Technology, Korea, Republic of (South)*.

Mechanistic Insights in the Direct Synthesis of Dimethyl Carbonate from Methanol and CO_2 on ZrO_2 from in Situ IR Spectroscopy
Matteo Signorile[1], Davide Salusso[1], Maria Cristina Paganini[1], Silvia Bordiga[1], Davide Ferri[2], Francesca Bonino[1] and Valentina Crocellà[1], *(1)Università di Torino, Italy, (2)Paul Scherrer Institut, Switzerland*.

A Novel Synthetic Route for Nano Fe Catalyst Loaded on Magnesium Aluminate Spinel for Fischer-Tropsch Synthesis to Olefins
Yu Wang, Houxing Li and Wende Xiao, *Shanghai Jiao Tong University, China*.

Utilizing the Oxygen Carrier Property of Cerium Iron Oxide for the Low Temperature Synthesis of 1, 3-Butadiene from 1-Butene
Aswathy T V and Thirumalaiswamy Raja, *CSIR-National Chemical Laboratory, India*.

Novel V_2O_5/TiO_2-Graphene Catalysts for Low-Temperature Selective Catalytic Reduction of NO_x By NH_3
Wei Jin, Meiyan Li, Chunxia Zhao, Binqing Jiao, Yueli Liu and Wen Chen, *Wuhan University of Technology, China*.

Dehydrogenation Mechanism Study of H_{12}-2-[N-Methylbenzyl]Pyridine on Pd and Pt Catalysts for Liquid Organic Hydrogen Storage System.
Hyunwoo Yook, Kyounghak Kim and Jeong Woo Han, *Pohang University of Science and Technology (POSTECH), Korea, Republic of (South)*.

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Activity, Deactivation, and Regeneration of Unsupported Mesoporous Nickel for Aryl Ether Hydrogenolysis
Chunming Zheng, *Tiangong University, China*.

The Selective Catalytic Reduction of N_2O By CO over Fe-Zeolites Catalysts in the Presence of O_2
Huazhen Chang, *Renmin University of China, China*.

The Effect of Steaming on the Acidity and Selectivity of ZSM-5 Toward Propylene
Essa Alnaimi[1], Aaron Akah[1], Vladimir Zholobenko[2] and Arthur Garforth[3], *(1)Saudi Aramco, Saudi Arabia, (2)The university of Keele, United Kingdom, (3)The University of Manchester, United Kingdom*.

Preparation of Porous Geopolymers for Catalytic Water Treatment Applications
Laura Bruynseels[1], Henrik Romar[2], Tao Hu[2], Riikka Juhola[2] and Anne Heponiemi[2], *(1)Campus Gasthuisberg UC Leuven-Limburg, Belgium, (2)University of Oulu, Finland*.

Oxidation of Light Hydrocarbons By Alpha and Di-Alpha Oxygen Stabilized in Fe-FER Zeolite
Kinga Mlekodaj[1], Edyta Tabor[2], Stepan Sklenak[2], Agnieszka Kornas[2] and Jiri Dedecek[2], *(1)J. Heyrovský Institute of Physical Chemistry of the CAS, v. v. i., Czech Republic, (2)J. Heyrovský Institute of Physical Chemistry of the CAS, Czech Republic*.

Controlled Lignocellulosic Biomass Liquefaction into Chemicals Coupling Supercritical Organic Solvents to Heterogeneous Catalysis Implemented in a Semi-Continuous Reactor
Marion Eternot and Nadine Essayem, *University Lyon, University Claude Bernard, CNRS, IRCELYON, UMR5256, France*.

CO_2 Activation By Chemical-Looping Reverse Water Gas Shift
Junichiro Makiura[1], Yutaro Kurosawa[1], Takuma Higo[1], Shuhei Ogo[2], Yasushi Hashimoto[3], Yasushi Sato[3] and Yasushi Sekine[1], *(1)Waseda University, Japan, (2)Japan Science and Technology Agency, Japan, (3)JXTG Nippon Oil and Energy, Japan*.

Effects of Oxygen and Water on the Formation of Polychlorinated Organic Byproducts in Catalytic Degradation of 1,2-Dichlorobenzene
Na Li[1], Xin Xing[1], Jie Cheng[1] and Zhengping Hao[2], *(1)University of Chinese Academy of Sciences, China, (2)Chinese Academy of Sciences, China*.

Reducible Supported Metal Oxides in CO_2 Conversion
Paolo Fornasiero[1], Michele Melchionna[1], Tiziano Montini[1], Maria Victoria Bracamonte[2], Claudio Tavagnacco[1], Giovanni Valenti[3], Lucia Nasi[4], Giovanni Bertoni[4], Marcella Bonchio[5], Francesco Paolucci[3] and Maurizio Prato[1], *(1)University of Trieste, Italy, (2)Universidad Nacional de Córdoba, Argentina, (3)University of Bologna, Italy, (4)CNR-IMEM Institute, Italy, (5)University of Padova, Italy*.

Adsorptive Desulfurization of Aromatic-Containing Model Fuels Using Mesoporous Rare Earth Exchanged Y Zeolites
Kevin Lee, Henry Sokol, Tyler Crowl and Ioulia Valla, *University of Connecticut, USA*.

Hydride Transfer to Surface Methoxy Species Determines Reactivity of DME and Methanol in Their Conversion to Hydrocarbon
Felix Kirchberger[1], Yue Liu[1], Markus Tonigold[2], Maricruz Sanchez-Sanchez[1] and Johannes A. Lercher[1,3], *(1)Technical University of Munich, Germany, (2)Clariant Produkte (Deutschland) GmbH, Germany, (3)Pacific Northwest National Laboratory, USA*.

Modified Method of Preparation of Ni Nanoparticles on the Surface of La_2O_3 and $LaMnO_3$ supports
Nataliya Dorofeeva[1], Maria Grabchenko[1], Kseniya Lysovaya[2], Leonarda Francesca Liotta[3] and Olga Vodyankina[1], *(1)Tomsk State University, Russian Federation, (2)Institute of Petroleum Chemistry, Russian Federation, (3)Istituto per lo Studio dei Materiali Nanostrutturati ISMN-CNR, Italy*.

The Reactivity of Open Sn Sites on Sn-β Zeolite Towards MPVO Reaction: Insights from Solid State NMR Spectroscopy
Guodong Qi[1], Jun Xu[2], Chao Wang[2] and Feng Deng[2], *(1)National Centre for Magnetic Resonance in Wuhan, Wuhan Institute of Physics and Mathematics, CAS, China, (2)Wuhan Institute of Physics and Mathematics, CAS, China*.

Predicting Binding Energy of CO_2 Reduction Intermediates on CuPd Alloy Surfaces with Active Learning
Seung Jae Kwak[1], Wonje Lee[2], Hyo Seok Kim[3], Jonggeol Na[4] and Won Bo Lee[3], *(1)Seoul National Univ., Korea, Republic of (South), (2)Yullin Technology, Korea, Republic of (South), (3)Seoul National University, Korea, Republic of (South), (4)Carnegie Mellon University, USA*.

Understanding the Activity of the Stable and Metastable Mo_2C_6 Clusters in Methane Dehydroaromatization and Experimental Approaches to Control the Evolution of Active Carbide Species
Sonit Balyan, Tuhin Suvra Khan, Kamal K. Pant and M. Ali Haider, *Indian Institute of Technology Delhi, India*.

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Liquid Organic Hydrides Dehydrogenation over Pt Catalyst: Effect of Iron Oxide Addition
Fengya Tong, *Sinopec, China*.

Pd Promoted Cu-ZnO/ZrO_2 Catalyst for CO_2 Hydrogenation to Methanol
Siddhartha Sengupta[1], Priyanshu Pratap Singh[1] and Gitika Rani Saha[2], *(1)Indian Institute of Technology (Indian School of Mines) Dhanbad, India, India, (2)IIT Bombay – Monash Research Academy, Indian Institute of Technology Bombay, India, India*.

A Single Step Process for Catalytic Hydrodeoxygenation of Pyrolysates Obtained from Microwave-Assisted Fast Pyrolysis of Biomass Using H-ZSM-5
Lakshmiprasad Gurrala and Vinu Ravikrishnan, *Indian Institute of Technology Madras, India*.

Performance of a Novel Synthesis-Gas Production System Combining with Carbon Capturing Process
Fukuhara Choji, Yoshito Matsui, Masaki Tanebayashi and Ryo Watanabe, *Shizuoka University, Japan*.

Modification of Naphtha Reforming CCR Catalyst with Alkaline Earth and Lanthanide Metals for Enhancing Liquid Yields and Catalyst Stability
K Murthy, Sumeet Shrma and Rakshvir Jasra, *Reliance Industries Limited, India*.

CuZn Catalysts in Dimethyl Adipate Hydrogenolysis
Violetta Pospelova[1], Jaroslav Aubrecht[1], Oleg Kikhtyanin[2] and David Kubicka[1,2], *(1)University of Chemistry and Technology, Czech Republic, (2)Technopark Kralupy, University of Chemistry and Technology Prague, Czech Republic*.

Pt-Pd Single Atom Alloys As Oxygen Reduction Reaction Catalysts
Sushila Marlow, Feng Ryan Wang and Ruoyu Xu, *University College London, United Kingdom*.

A Novel Heterogeneous Heat Transfer Model for Open-Cell Foams As Catalytic Supports
Matteo Ambrosetti, Mauro Bracconi, Riccardo Balzarotti, Gianpiero Groppi and Enrico Tronconi, *Politecnico di Milano, Italy*.

Optimized Operation of High-Temperature Solid Oxide Electrolysis Cells (SOECs) for Power-to-Methane Applications Based on Detailed Numerical Simulation
Lukas Wehrle[1], Julian Dailly[2], Régis Anghilante[2], Aayan Banerjee[3] and Olaf Deutschmann[1], *(1)Karlsruhe Institute of Technology, Germany, (2)European Institute for Energy Research (EIFER), Germany, (3)Imperial College London, United Kingdom*.

Few-Layer-Graphene/CNF Supported Ni NPs: A Robust Catalyst for Selective CO_2 Hydrogenation in an Inductive Heating Setup
Anurag Mohanty and Izabela Janowska, *University of Strasbourg, France*.

Co- and Ga-Doping of $LaAlO_3$ Perovskite Orients Ethanol Conversion Towards Hydrogenation Products
Quang Nguyen Tran[1], Olinda Gimello[1], Nathalie Tanchoux[1], Monica Ceretti[1], Stefania Albonetti[2], Barbara Bonelli[3], Werner Paulus[1] and Francesco Di Renzo[1], *(1)Univ Montpellier CNRS ENSCM, France, (2)University of Bologna, Italy, (3)Politecnico di Torino, Italy*.

Advanced Ziegler – Natta Catalyst for Polypropylene – an Experimental and Computational Approach
Virendra Gupta and Jugal Kumawat, *Reliance Industries Limited, India*.

Surface Modification of TiO_2 with Metal Oxides for Oxygen Evolution
Michael Nolan[1], Stephen Rhatigan[1] and Gerardo Colon[2], *(1)Tyndall National Institute, Ireland, (2)ICMSE Sevilla, Spain*.

One-Step Glycerol Hydrodeoxygenation to Propylene: Comparison of Batch and Continuous Operation
Vasileia - Loukia Yfanti, Foteini Lappa and Angeliki Lemonidou, *Aristotle University of Thessaloniki, Greece*.

Elucidating the Copper Species in Alumina Supported $CuCl_2$-Catalysts during Oxychlorination of Ethylene to 1,2-Dichloroethane By *Operando* XAFS, PXRD and UV-Vis Using MCR-AR Analysis
Samuel K. Regli[1], Endre Fenes[1], Hongfei Ma[1], Kumar Ranjan Rout[1], Wouter Van Beek[2], Terje Fuglerud[3], De Chen[1] and Magnus Rønning[1], *(1)Norwegian University of Science and Technology, Norway, (2)European Synchrotron Radiation Facility, France, (3)INOVYN, Norway*.

In Search of the Reaction Pathway of CO_2 Methanation on Rh/CeO_2
Felix Hemmingsson[1,2] and Per-Anders Carlsson[2], *(1)Competence Centre for Catalysis, Sweden, (2)Chalmers University of Technology, Sweden*.

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Design of Composite Support Based on γ-Al_2O_3 and MWCNTs for CoMoS Hydrotreating Catalyst
Mariya Kazakova[1,2], Yulia Vatutina[1,2], Maxim Kazakov[1], Oleg Klimov[1] and Alexander Noskov[1], *(1)Boreskov Institute of Catalysis SB RAS, Russian Federation, (2)Novosibirsk State University, Russian Federation*.

Impact of Sulfur on NH_3-SCR Activity of Cu-CHA Catalysts before and after Regeneration.
Peter S. Hammershøi, Peter N.R. Vennestrøm and Ton V.W. Janssens, *Umicore Denmark ApS, Denmark*.

Catalytic Transfer Hydrogenation of Non-Edible Natural Oil into Fatty Alcohols over Cu-Co Catalysts
Xuemei Liao, *Xihua University, China*.

CeO_2-NiO Catalyst for Carbon Monoxide Oxidation Active Under Substoichiometric Oxygen Conditions for Passive DOC System
Sergio Molina[1], Eduardo Poggio-Fraccari[2], Marina Cortes-Reyes[1], Concepción Herrera[1], María Ángeles Larrubia Vargas[1], Fernando Mariño[2] and Luis Alemany[1], *(1)University of Malaga, Spain, (2)IHTES UBA-CONICET, Argentina*.

Ru/BEA As Highly Selective Catalyst for the Liquid-Phase Amination of 1-Octanol with Ammonia
Marc Pera-Titus[1], Lin Fang[2], Zhen Yan[1], Aram Bugaev[3] and Lamberti Carlo[4], *(1)Solvay, China, (2)E2, China, (3)Southern Federal University, Russian Federation, (4)University of Torino, Italy*.

Structured Silver Foam in the Selective Oxidation of Methanol to Formaldehyde
Sebastian Eckstein, Leonhard Schmalhorst, Didier Béton, Alexandra Gerstle, Andreas Tillmann and Lars Torkuhl, *Alantum Europe GmbH, Germany*.

Co-Mn Mixed Oxides for CO Removal in Hydrogen Rich Gases
Silviya Todorova, Hristo Kolev, Diana Filkova and Ivanka Ivanova, *Institute of catalysis- Bulgarian Academy of Sciences, Bulgaria*.

Investigating the Role of Co in Ni-Co Bimetallic Catalysts for Steam Methane Reforming
Shirley Elisabeth Liland[1,2], Kumar Ranjan Rout[1,2], Yalan Wang[2], Yanying Qi[2] and De Chen[2], *(1)SINTEF, Norway, (2)Norwegian University of Science and Technology, Norway*.

Towards the Mechanism of Total Oxidation of Toluene over Ag-Based Catalysts: A DFT Study
Mikhail Salaev and Grigory Mamontov, *Tomsk State University, Russian Federation*.

Selective Catalytic Production of Oxygenates Directly from Raw Biomass Materials
Jianmei Li, Liangfang Zhu and Changwei Hu, *College of Chemistry, Sichuan University, China*.

Optimized Synthesis and Catalytic Evaluation of IWV-Type Zeolites As a Showcase for the Development of Zeolite Synthesis-Property-Function Relationships
Joel E. Schmidt[1,2], Cong-Yan Chen[1], Stephen K. Brand[2], Stacey I. Zones[1] and Mark E. Davis[2], *(1)Chevron Energy Technology Company, USA, (2)California Institute of Technology, USA*.

Synthesis of Catalysts for Total Oxidation of Methane Suited for Alternative Fuels
Maxime Delporte[1], Helena Kaper[1], Xavier Courtois[1,2], Fabien Can[2,3] and Nicolas Bion[3], *(1)CNRS, France, (2)University of Poitiers, France, (3)Institut de Chimie des Milieux et Matériaux de Poitiers (IC2MP), CNRS, Université de Poitiers, France*.

Glycerol-Assisted Impregnation of Cs-Doped Co_3O_4 on Ceramic Foam for Preparation of deN_2O Catalyst
Tomáš Kiška, Anna Klegová, Kateřina Pacultová and Lucie Obalová, *VSB-TUO, Czech Republic*.

On the Activation of Syngas over ZnAlOx Catalyst, Insights from Solid -State NMR Studies.
Pan Gao, Dong Xiao, Yi Ji, Zhenchao Zhao and Guangjin Hou, *Dalian Institute of Chemical Physics, Chinese Academy of Sciences, China*.

In-Situ Exsolution Synthesis of Multi-Metallic Nano-Catalysts in Defect Engineered Perovskite Supports
Soham Shah[1], Samuel Sayono[1], Jenna Ynzunza[1], Ryan Pan[1], Mingjie Xu[2], Xiaoqing Pan[2] and Kandis Leslie Abdul-Aziz[1], *(1)University of California, Riverside, USA, (2)University of California, Irvine, USA*.

Hydrogen Photoproduction with Atomic Quantum Metal Clusters Deposited on TiO_2
Allen Reid, *NANOGAP, Spain*.

Hierarchical NiCo LDH Nanosheets As an Efficient Adsorbent for Antibiotics and Anionic Dyes from Waste Water
Summaira Saghir and Zhenggang Xiao, *Nanjing University of Science and Technology, China*.

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Zeolite Catalysts for Ecological Catalysis
Marzhan Sadenova[1], Svetlana Tungatarova[2,3], Tolkyn S. Baizhumanova[2,3], Meruyert Utegenova[1] and Zarina Baukenova[1], *(1)D. Serikbayev East Kazakhstan State Technical University, Kazakhstan, (2)al-Farabi Kazakh National University, Kazakhstan, (3)D.V. Sokolsky Institute of Fuel, Catalysis and Electrochemistry, Kazakhstan*.

Root Cause Analysis for Low Yield of p-Diethylbenzene Produced By Catalytic Alkylation of Ethylbenzene with Ethylene
Ganesan Raman, *Reliance Industries Limited, Mumbai, India*.

Insights into the Pyridine-Modified MOR Zeolite Catalysts for DME carbonylation
Kaipeng Cao[1,2], Dong Fan[2], Peng Tian[2] and Zhongmin Liu[2], *(1)University of Chinese Academy of Sciences, China, (2)Dalian Institute of Chemical Physics, China*.

Silver Catalysts Co-Promoted By Re, Cl and Alkali Metals: Theoretical Insights into Promoting Effects
Mikhail Salaev, Arina Salaeva and Olga Vodyankina, *Tomsk State University, Russian Federation*.

DEMS of CO Electroreduction in a Flow Cell
Bjorn Hasa, Matthew Jouny, Bingjun Xu and Feng Jiao, *University of Delaware, USA*.

Tandem Selective Catalytic Hydrogenation of Butadiene with Hydrogen Generated By Decomposition of Formic Acid
Damarys Carrales-Alvarado[1], Ana Belén Dongil[1], Antonio Guerrero-Ruiz[2] and Inmaculada Rodríguez-Ramos[1], *(1)Instituto de Catálisis y Petroleoquímica, CSIC, Spain, (2)UNED, Spain*.

Bifunctional Eu(III)- and Nb(V)-Containing Saponite Clays for the Optical Detection and Oxidative Abatement of Chemical Warfare Agents
Stefano Marchesi[1], Fabio Carniato[1], Chiara Bisio[1,2] and Matteo Guidotti[2], *(1)Università del Piemonte Orientale "A. Avogadro", Italy, (2)CNR-SCITEC, Italy*.

Oscillation of Work Function during Reducible Metal Oxide Catalysis and Correlation with the Activity Property
Yanbo Pan[1], Xiaochen Shen[1], Libo Yao[1], Dezhen Wu[1], Abdulaziz Bentalib[2] and Zhenmeng Peng[1], *(1)The University of Akron, USA, (2)University of Akron, USA*.

Isotopic Study of Real Soot Removal Mechanism over Passive Converters
Marina Cortes-Reyes[1], Juan Carlos Martínez-Munuera[2], Concepción Herrera[1], María Ángeles Larrubia Vargas[1], Avelina García-García[2] and Luis Alemany[1], *(1)University of Malaga, Spain, (2)University of Alicante, Spain*.

Metal Complexes As Precursors of Well-Dispersed Metallic Supported Catalysts and Effect of Pretreatment in HDO Reaction
Danielle Gonçalves, Karen Resende, Tanna E. R. Fiuza, Igor Gomes and Daniela Zanchet, *University of Campinas, Brazil*.

Tuning Reactive Oxygen Species Selectivity of Non-Metal Doped TiO_2 Nanotube Arrays for Wastewater Treatment
Christian L. Coonrod[1,2] and Michael S. Wong[1,2], *(1)Rice University, USA, (2)Nanotechnology Enabled Water Treatment (NEWT) Center, USA*.

Acetone Hydrogenation on Platinum: A Self-Adjusting Surface
Keishla Rivera-Dones[1], Benginur Demir[1,2], Thomas Kropp[1], George Huber[1], Manos Mavrikakis[1] and James A. Dumesic[1,2], *(1)University of Wisconsin - Madison, USA, (2)Great Lakes Bioenergy Research Center, USA*.

Surface Dynamics Studies at the Nanoscale By Atom Probe Microscopy: Oxygen Atoms Tracking on Rh, Pt and Pt-Rh Surfaces during H_2+O_2 Reaction
Sten Lambeets[1], Thierry Visart de Bocarmé[2], Sylwia Owczarek[3], Norbert Kruse[4] and Daniel Perea[1], *(1)Pacific Northwest National Laboratory, USA, (2)Université Libre de Bruxelles, Belgium, (3)University of Wroclaw, Poland, (4)Washington State University, USA*.

DFT Mechanistic Study of α, β-Dehydrogenation of Piperidone By Au/OMS-2 Catalyst: Charge-State Controlled O_2 Activation for Indirect Dehydrogenation
Jun-ya Hasegawa[1] and Kazuya Yamaguchi[2], *(1)Hokkaido University, Japan, (2)The University of Tokyo, Japan*.

Insights into CO_2-Storage and Regeneration Mechanism over Ni-Modified Unsupported Model Catalyst By Labeled Molecules
Diana Peltzer[1], Sergio Molina[2], Laura Cornaglia[3], Marina Cortes-Reyes[2], Concepción Herrera[2], María Ángeles Larrubia Vargas[2] and Luis Alemany[2], *(1)Instituto de Investigaciones en Catálisis y Petroquímica (INCAPE), Universidad Nacional del Litoral, Argentina, (2)University of Malaga, Spain, (3)Instituto de Investigaciones en Catálisis y Petroquímica (INCAPE), Universidad Nacional del Litoral, CONICET, Argentina*.

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Aqueous Phase Reforming of the Residual Waters Derived from Lignin-Rich Hydrothermal Liquefaction: Investigation of Representative Organic Compounds and Actual Biorefinery Streams
Giulia Zoppi[1], Raffaele Pirone[1], Giuseppe Pipitone[1], Samir Bensaid[1], Sergio Bocchini[2], Andrea Maria Rizzo[3] and David Chiaramonti[4], *(1)Politecnico di Torino, Italy, (2)Italian Institute of Technology, Italy, (3)RE-CORD, Italy, (4)CREAR, Italy*.

Effect of Catalyst Particle Shape and Metal Deposition Patterns on Gas-Liquid Multiphase Fixed-Bed Reactor Performance
Patrick L Mills and Anuradha Nagaraj, *Texas A&M University - Kingsville, USA*.

Modelling Ensembles of Catalyst Nanoparticles Under Reaction Conditions By Applied Boltzmann Statistics
Raffaele Cheula[1], Matteo Maestri[1] and Giannis Mpourmpakis[2], *(1)Politecnico di Milano, Italy, (2)University of Pittsburgh, USA*.

Enhanced Oligomerization of Ethylene in the Presence of Butene over Nickel-Free Silica-Alumina
Eric Doskocil[1] and Thomas Douglas[2], *(1)BP, USA, (2)BP, United Kingdom*.

New Insight into CO_2 Hydrogenation over Supported Co Nanoparticles
Rena Oh and Seong Keun Kim, *Seoul National University, Korea, Republic of (South)*.

Intrinsic Properties of Nitrogen-Rich Carbon Nitride for Oxygen Reduction Reaction
Jiayi Xu and Bin Liu, *Kansas State University, USA*.

Competitive Transient Electrostatic Adsorption Mechanism for in Situ Regeneration of Poisoned Catalyst
Yanbo Pan[1], Xiaochen Shen[1], Libo Yao[1], Abdulaziz Bentalib[2] and Zhenmeng Peng[1], *(1)The University of Akron, USA, (2)University of Akron, USA*.

Modified YIG Garnets for Oxidation of Ethylbenzene, Styrene and Benzyl Alcohol
Andre Luiz G Pinheiro[1], Alcineia Oliveira[1], João Maria Soares[2], Manela O de Castro[2], Ramon Raudel[3] and E Padron-Hernandez[3], *(1)Universidade Federal do Ceara, Brazil, (2)Universidade Estadual do Rio Grande do Norte, Brazil, (3)Universidade Federal de Pernambuco, Brazil*.

***In Situ* S/TEM Reactions of $Ag/ZrO_2/SiO_2$ Catalysts**
Kinga A. Unocic[1], Vanessa Dagle[2], Robert A. Dagle[2], Harry Meyer III[1], Evan C. Wegener[3], A. Jeremy Kropf[4], Ted Krause[4], Daniel Ruddy[3], Lawrence F. Allard[1] and Susan E. Habas[3], *(1)Oak Ridge National Laboratory, USA, (2)Pacific Northwest National Laboratory, USA, (3)National Renewable Energy Laboratory, USA, (4)Argonne National Laboratory, USA*.

Formulation of Titania Extrudates with Bimodal Pores For Cobalt-Based Fischer–Tropsch Synthesis Catalyst
Zhaorong Zhang[1], Eric Doskocil[2] and James Paterson[3], *(1)BP Group Reseaerch, USA, (2)BP, USA, (3)BP International, United Kingdom*.

Zeolite-Confined Synthesis of Highly Dispersed Nano MoC on Carbon Nanosheets and Its High Performance in Hydrogen Evolution Reaction
Boxu Gao and Yi Tang, *Fudan University, China*.

Effect of Tin in the Bulk of Platinum-Tin Alloys for Ethane Dehydrogenation
Jinwoong Nam and Fuat E. Celik, *Rutgers, The State University of New Jersey, USA*.

Synthesis of Hierarchically Structured Zeolite-Y/SiC Composites and Their Application on n-Heptane Cracking
Balasubramanian Vaithilingam, *ADNOC Refining, United Arab Emirates*.

Speciation and Dynamics of Pd and Pt-Exchanged Zeolites Under Hydrothermal Conditions
Chris Paolucci, *University of Virginia, USA*.

Hydrothermal Carbonization and Slow Pyrolysis Biochar Designed for Mesoporous Supports
Mark Gale[1], Marissa Moreno[2] and Kandis Leslie Abdul-Aziz[3], *(1)University of California, Riverside, USA, (2)Riverside City College, USA, (3)University of California, Irvine, USA*.

Mixed Thermoelectrochemical Hydrogenation Catalysis Using Electrochemically Reducible Metal Oxides
Evan Miu, Giannis Mpourmpakis and James McKone, *University of Pittsburgh, USA*.

Towards High Performance Self-Cleaning Construction Materials: Mn- and Zn-Doped TiO_2-Added Metakaolin-Based Geopolymers
Kardelen Kaya[1], Sezen Soyer-Uzun[1] and Alper Uzun[2], *(1)Bogazici University, Turkey, (2)Koc University, Turkey*.

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CuPt Bimetallic Nanoparticles As Highly Active and Selective Catalysts for Hydrogenation of Nitroaromatic Compounds
Danielle Kikuchi, Jhonatan Fiorio, Renato Gonçalves and Liane Rossi, *University of São Paulo, Brazil*.

Infrared Diagnosis of Site Isolation in Dilute Limit Alloys
Leandro De Castro[1,2], Christopher T. Williams[2] and John R. Regalbuto[2], *(1)Universty of the PHilippines Los Banos, Philippines, (2)University of South Carolina, USA*.

Study of the Impact of the Sulphiding Feed during Industrial Liquid Activation of Hydrotreating Catalysts By Operando Raman
Marisa De Sousa Duarte, Matthieu Rolland, Bertrand Guichard, Charles-Philippe Lienemann and Olivier Delpoux, *IFP energies nouvelles, France*.

Organometallic and Inorganic Heterogeneous, Iridium-Based Catalysts for the Regioselective Dehydrogenation of Light Alkanes
Boris Sheludko, Cristina F. Castro, Alan Goldman and Fuat E. Celik, *Rutgers, The State University of New Jersey, USA*.

A Temporal Analysis of Products (TAP) and Density Functional Theory (DFT) Study of Active Sites for Passive NO_x Adsorption (PNA) on 1% Pd/SSZ-13
Unmesh Menon, Bhuiyan Md. M. Rahman, Taha Salavati-fard, Abhay Gupta, Mugdha Ambast, Michael P. Harold and Lars C. Grabow, *University of Houston, USA*.

Ru-Based Catalysts for the Dry Reforming of Methane: In-Situ Identification of the Metal-Oxide Interactions for Enhanced Conversion
Zongyuan Liu[1], Feng Zhang[2] and Sanjaya Senanayake[1], *(1)Brookhaven National Laboratory, USA, (2)Stony Brook University, USA*.

Ni Supported on $Mg_{1-X}Al_{2-Y}O_4$ (x = Mn and y = Fe) Prepared By One-Step Synthesis for Dry Reforming of CH_4
Heloisa Macedo[1], Rodolfo Medeiros[1], Fernando Maziviero[1], Angelo Oliveira[2], Tomaz De Araújo[1], Renata Braga[3], Marcus Melo[2] and Dulce Melo[2], *(1)Laboratório de Tecnologia ambiental - LabTam/UFRN, Brazil, (2)Federal University of Rio Grande do Norte, Brazil, (3)UFRN, Brazil*.

Green Synthesis of Pillared and Desilicated MWW Zeolites Using Silica from an Agro-Industrial Waste, Rice Husk Ash
Jaíne Fernandes Gomes[1], Katia Bernardo-Gusmão[1], Alexander Sachse[2], José Ribeiro Gregório[1] and Anderson Schwanke[1], *(1)Universidade Federal do Rio Grande do Sul, Brazil, (2)Université de Poitier, France*.

Encapsulation of Complex-Derived CoCu Bimetallic Catalysts within Mesopores for Higher Alcohol Synthesis from Syngas
Zhuoshi Li, Yue Wang and Xinbin Ma, *Tianjin University, China*.

ZnO Nanowire Supported Cu for Methanol Steam Reforming
Yiwei Yu, Jia Xu and Jingyue Liu, *Arizona State University, USA*.

Promoting Effect of Supports with Oxygen Vacancies on the Reduction/Carburization of Iron Oxide
Javier Mora, Sathish Ponnurangam, Josephine Hill and Yoni Naderstigt, *University of Calgary, Canada*.

Kinetic Analysis of 5-Hydroxymethylfurfural to2,5-Furandicarboxylic Acid Using ZnO/PPY As Catalyst Under Visible Light Irradiation
Diego Alexander González Casamachin[1], Javier Rivera de la Rosa[1], Carlos Lucio Ortiz[1], Ladislao Sandoval-Rangel[2] and Carlos D. Garcia[3], *(1)Universidad Autónoma de Nuevo León, Mexico, (2)Instituto Tecnológico de Estudios Superiores de Monterrey, Mexico, (3)Clemson University, USA*.

Selectivity in Multiple Guises: Microkinetics of NH_3 Oxidation on Platinum-Group Metals
Hanyu Ma and William F. Schneider, *University of Notre Dame, USA*.

Cyclic(alkyl)Amino Carbenes Synthesis and Applications
Rodolphe Jazzar[1,2] and Guy Bertrand[1,2], *(1)UCSD, USA, (2)Centre National de la Recherche Scientifique (CNRS), France*.

Ab-Initio Microkinetic Modelling of Ethanol Hydrodeoxygenation, Ethanol Dehydrogenation and Ethanol Steam Reforming to Understand Catalytic Reactivity Trends for C-C, C-O and C-H Bond Activation
Fatima Jalid, M. Ali Haider and Tuhin Suvra Khan, *Indian Institute of Technology Delhi, India*.

Bi Single Atoms Alleviate H_2O Poisoning for CO Oxidation on Two-Dimensional Co_3O_4 Catalysts
Jia Xu, Dongyao Wang and Jingyue Liu, *Arizona State University, USA*.

Impacts of Calcination on Surface-Clean Supported Nanoparticle Catalysts
Kristin Bryant[1], Christy Wheeler West[2] and Steven Saunders[1], *(1)Washington State University, USA, (2)University of South Alabama, USA*.

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Methods to Tune the Selectivity of Catalytic Carbonylations
Yuehui Li, *Lanzhou Institute of Chemical Physics, CAS, China*.

Selective Production of Monomers from Lignin Depolymerization By ZnO-Co/N-CNTs
Umair Mushtaq and Jaehoon Kim, *Sungkyunkwan University, Korea, Republic of (South)*.

Development of a Reactor for Fast Testing and Characterization of Heterogeneous Catalysts with Temperature-Programmed Methods
Pierre Kube, Gregor Koch, Robert Schlögl and Annette Trunschke, *Fritz Haber Institute of the Max Planck Society, Germany*.

The Use of KIT-6 and SBA-15 for Heterogenization of Ni-β Diamino Complexes for Ethylene Oligomerization
Adriano Martinez Basso[1], Bruna Pes Nicola[2], Katia Bernardo-Gusmão[3] and Sibele B. C. Pergher[1], *(1)Federal University of Rio Grande do Norte, Brazil, (2)Federal University of Rio Grande do Sul, Brazil, (3)Universidade Federal do Rio Grande do Sul, Brazil*.

Activation Peroxymonosulfate By a Novel Fe@N-Doped Graphene-like Carbon Fabricating from the Coupling Metal–Organic Frameworks and g-C_3N_4
Fei Qi and Chao Liu, *Beijing Forestry University, China*.

Deactivation Mechanism of $Ni(OH)_2$ for Oxygen Evolution Reaction; In Situ XANES Study.
SangYeon Lee, *Dankook University, Korea, Republic of (South); Dankook University, Korea, Republic of (South)*.

Selective Reduction of Carboxylic Acids to Aldehydes over Promoted MoO_3 Catalyst
laura Alejandra Gomez, Mallikharjuna Komarneni, Jennifer Gutierrez and Steven Crossley, *University of Oklahoma, USA*.

Scrutinizing the Mechanism of CO_2 Hydrogenation on Ni-Co Catalysts through Kinetic, Isotopic, DFT and Spectroscopic Evidences
Sebastián Godoy[1], Francisco Villagra[1], Patricio Orrego[1], Alejandro Karelovic[2] and Romel Jiménez[1], *(1)University of Concepcion, Chile, (2)Universidad de Concepcion, Chile*.

Insight into Deactivation Mechanism of MOR Catalyst during Carbonylation of Dimethyl Ether
Shouying Huang and Xinbin Ma, *Tianjin University, China*.

Confinement of Supported Au Nanoparticles with Ceria By Atomic Layer Deposition: Their Catalytic Performance As Nanoreactors in the 4-Nitrophenol Reduction
Liliana Vargas[1], Andrey V. Simakov[2], Elena Smolentseva[2], Serguei Miridonov[3], Miguel Estrada[2] and Hugo Tiznado[2], *(1)CICESE, Mexico, (2)Universidad Nacional Autónoma de México, Centro de Nanociencias y Nanotecnología, Mexico, (3)Centro de Investigación Científica y de Educación Superior de Ensenada, Mexico*.

Dehydrogenation of Propene to Produce Propylene with a Pt-Sn/SBA-16: Analysis of the Coke Evolution.
Alfonso Talavera Lopez[1], Jose P. Ruelas Leyva[2], Omar Valdés[3], Gustavo A. Fuentes[3], Sergio Gomez Torres[3], Jose R Rosas Cedillo[3] and Sergio A. Jimenez-Lam[2], *(1)Universidad Autonoma de Zacatecas, Mexico, (2)Universidad Autonoma de Sinaloa, Mexico, (3)Universidad Autónoma Metropolitana-Iztapalapa, Mexico*.

Potassium-Ion Exchanged ZSM-5: A High Performance Catalyst for Acrylic Acid Production from Ethyl Lactate
Zong-Hui Liu, Bo Yan and Bo-Qing Xu, *Tsinghua University, China*.

A Generalized Mechanistic Interpretation of Light Alkane Reactions on Transition Metal Oxide Catalysts
Rui Yao[1], Jose Herrera[2] and Ya-Huei (Cathy) Chin[1], *(1)University of Toronto, Canada, (2)Western University, Canada*.

Influence of the Pt Precursor on the Preparation, Stability and CO Oxidation Performance of Single-Atom Pt/Al_2O_3 Catalysts
Thomas Len[1], Caroline Dessal[1], Franck Morfin[1], Jean-Luc Rousset[1], Pavel Afanasiev[2] and Laurent Piccolo[3], *(1)University of Lyon, France, (2)UMR 5256, Université de Lyon, CNRS, France, (3)University of Lyon / CNRS, France*.

Convolutional Neural Networks for Accelerating Electronic Structure Calculation Relaxations for Catalysis
Junwoong Yoon and Zachary Ulissi, *Carnegie Mellon University, USA*.

Tuning the Activity of Ru from Fischer-Tropsch to Methanol Synthesis
Eduardo Valle[1], Alessandro Gallo[2], Verena Streibel[1], Tej Choksi[3], Melis Duyar[1], Frank Abild-Pedersen[4] and Thomas F. Jaramillo[2], *(1)Stanford University, USA, (2)SLAC National Accelerator Laboratory, USA, (3)Purdue University, USA, (4)SLAC National Laboratory, USA*.

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Au-and Pd-Catalysed Cascade Process of Alkyne Derivatives Involving Hydrohydrazination Followed By Cross-Coupling
Sima Yazdani[1], Rodolphe Jazzar[2], Douglas Grotjahn[3] and Guy Bertrand[4], *(1)San Diego state university, USA, (2)Centre National de la Recherche Scientifique (CNRS), France, (3)San Diego State University, USA, (4)UCSD, USA*.

The Shape of Water in Tight Spaces and the Impact of Solvent Structure on Alkene Epoxidations in Ti Zeolites
Daniel Bregante, Jun Zhi Tan, Matthew Chan, Zeynep Ayla, Ami Patel, Diwakar Shukla and David Flaherty, *University of Illinois at Urbana-Champaign, USA*.

Synthesis of Triphenylphosphine-Based Covalent Organic Frameworks and Their Use As Supports for the Rhodium Catalyzed Hydroformylation of Olefins
Yining Fan, *Nanjing university, China*.

Elucidating Support Effect in Supported Pt-Sn Catalyst for Efficient Propane Dehydrogenation
Ali Hussain Motagamwala, Rawan Almallahi, Valentina Igenegbai, James Wortman and Suljo Linic, *University of Michigan - Ann Arbor, USA*.

Direct Catalytic Hydrogenation of CO_2 into Light Olefins over Cu-Anchored Iron Oxide Catalysts
Zhaoxuan Wu[1], Hui Wang[2] and Yuhan Sun[1], *(1)Shanghai Advanced Research Institute, Chinese Academy of Sciences, China, (2)University of the Chinese Academy of Sciences, China*.

Soluble and Reusable Polymer Catalysts for Hydroxymethylfurfural (HMF) Production
Ibeh Omodolor, Sarah Walz, Subhash Kalidindi, Hossein Abedsoltan, Sridhar Viamajala, Maria Coleman and Ana Alba-Rubio, *University of Toledo, USA*.

Bi_2O_2Se As a Novel Cocatalyst for Photocatalytic Hydrogen Evolution
Deng Ding, *Wuhan University, China; U.C. Riverside, USA*.

Multifunctional Immobilized Bimetallic (Pd-Ag/Bi)@HSO_3-UiO-66 Catalysts for One-Pot Glycerol Transformation into Lactic Acid
Sergey Ten[1], Olga Vodyankina[2] and Viktoriia Torbina[2], *(1)National Research Tomsk State University, Russian Federation, (2)Tomsk State University, Russian Federation*.

Catalytic Oxidation of CO and Formaldehyde over Modified MnO_2 Catalysts with OMS-2 Structure
Valeryi Verkhov[1], Francisco Cadete Santos Aires[2], Vladimir Sobolev[3] and Olga Vodyankina[1], *(1)Tomsk State University, Russian Federation, (2)IRCELYON, France, (3)Boreskov Institute of Catalysis, Russian Federation*.

Influence of Support Chemistry on the Performance of Pd/C Catalysts for the Hydrogenation of Multifunctional Chemicals
Hamed Bateni[1,2], Laura Snyder[1,2] and Jean-Philippe Tessonnier[1,2], *(1)NSF-ERC Center for Biorenewable Chemicals (CBiRC), USA, (2)Iowa State University, USA*.

Ni-Zn@N-Doped Carbon Catalyst Derived from ZIF-8 for CO_2 selective Reduction to CO
Nágila Maluf[1], Adriano Braga[1], Thiago dos Santos[2], Célia Ronconi[2], Renato Gonçalves[1] and Liane Rossi[1], *(1)University of São Paulo, Brazil, (2)Fluminense Federal University, Brazil*.

In Situ UV-Vis and XANES Spectroscopies during the Epoxidation of Propylene
Alfonso Talavera Lopez[1], Jose P. Ruelas Leyva[2], Sergio A. Jimenez-Lam[2], Omar Valdés[3], Jose R Rosas Cedillo[3], Gustavo A. Fuentes[3] and Sergio Gomez Torres[3], *(1)Universidad Autonoma de Zacatecas, Mexico, (2)Universidad Autonoma de Sinaloa, Mexico, (3)Universidad Autónoma Metropolitana-Iztapalapa, Mexico*.

Plasma-Catalytic Hydrogenation of CO_2 to Methanol at Room Temperature and Atmospheric Pressure
Yaolin Wang, Xin Tu and Li Wang, *University of Liverpool, United Kingdom*.

Mechanistic Insights on Ethylene Polymerization with d^8 Metal Atoms
Nicholas R. Jaegers[1], Konstantin Khivantsev[1], Libor Kovarik[1], Jian Zhi Hu[1], Yong Wang[2] and Janos Szanyi[1], *(1)Pacific Northwest National Laboratory, USA, (2)Washington State University, USA*.

Effect of Partial Reduction of Ceria in Nanoreactors Au@CeO_2, and Au@Ce_xZr_yO on the Catalytic Reduction of 4-Nitrophenol to 4-Aminophenol.
Sandra Beatriz Aguirre[1] and Andrey V. Simakov[2], *(1)CNyN- Universidad Nacional Autonoma de Mexico, Mexico, (2)Universidad Nacional Autónoma de México, Centro de Nanociencias y Nanotecnología, Mexico*.

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Highly Dispersed Cobalt Oxide (CoO) Supported on SiO_2-Al_2O_3 Catalyst for Propane Dehydrogenation: Effect of Doping Heteroatom
Nikita Dewangan, Kus Hidajat and Sibudjing Kawi, *National University of Singapore, Singapore*.

Direct Dry Synthesis of Supported Bimetallic Catalysts
Jacopo De Bellis, Michael Felderhoff and Ferdi Schüth, *Max-Planck-Institut für Kohlenforschung, Germany*.

Direct Conversion of Syngas to Aromatics over Bifunctional Catalysts
Wei Zhou and Ye Wang, *Xiamen University, China*.

Reaction Intermediates during Operando Electrocatalysis Identified from Full Solvent Quantum Mechanics Molecular Dynamics
Tao Cheng[1] and William Goddard[2], *(1)Soochow University, China, (2)California Institute of Technology, USA*.

Ni Supported on Layered Double Hydroxide-Derived Catalysts for Steam Reforming of Biomass Model Compound: Effect of Synthesis Method on Metal-Support Interaction
Shanmukapriya Jayaprakash, *National University of Singapore, Singapore*.

Catalyst characterization by IR spectroscopy of adsorbed molecules
Alexey Tsyganenko, *Saint Petersburg State University, Russian Federation*.

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WEDNESDAY POSTER SESSIONS

Cerium-Chromium-Nickel (CCN) Based Mixed Metal Oxides for Steam Reforming of Methane
Raja Thirumalaiswamy, Vipul Patil, Sivaprasad Mekhala and E Karthick Raja, *CSIR-National Chemical Laboratory, India*.

Highly Dispersed Pd Catalysts Supported on Various Carbons for Furfural Hydrogenation
Jihyeon Lee[1] and Kwangjin An[2], *(1)Ulsan National Institute of Science and Technology (UNIST), Korea, Republic of (South), (2)Ulsan National Institute of Science and Technology(UNIST), Korea, Republic of (South)*.

Spherical Au@CuO_x Nano-Reactors Anchored on CeO_2 Support for Preferential Oxidation of CO
Qi Wang, Tuya Naren, Shangpeng Liu, Caixia Li, Yuansong Zhao, Jinfang Wu and Shanghong Zeng, *Inner Mongolia University, China*.

From Noble Metal to Confined Catalysts for Biomass Hydrogenation
Yan Liu[1] and Wei Chu[2], *(1)Institute of Chemical & Engineering Sciences, Singapore, (2)Sichuan University, China*.

Y Zeolite Hydrophobicity Due to Absent Brønsted Acidic Hydroxyls in the Surface Layers of Crystallites
Istvan Halasz[1] and Mukesh Agarwal[2], *(1)PQ Corporation, USA, (2)PQ Corporation, USA*.

Study on Surface Reaction Kinetics of so_2 Temperature Programmed on Sulfur Tail Gas Hydrogenation Catalyst
Ran Su, Ranjia Li and Changchun Yu, *China University of Petroleum, Beijing, China*.

Supporting Highly Stable Sub-2-nm Ni Nanoparticles within Silicate MFI Zeolite for High-Temperature Catalytic Reaction
Numan Muhammad, Changbum Jo, EunJi Eom and NamSun Kim, *Inha University, Korea, Republic of (South)*.

New Bifunctional Catalyst for Friedel-Crafts Benzylation of Benzene
Areej Alasmari and Mohamed Hamdy, *King Khalid University, Saudi Arabia*.

Novel Preparation Method for Photoactive Bismuth Silicate Catalysts
Yulia Belik, Andrei Vodyankin, Elena Fakhrutdinova, Valery Svetlichnyi and Olga Vodyankina, *Tomsk State University, Russian Federation*.

Process Systems Approach Towards Directed Catalyst Design
Mohammad Reza Abbasi[1,2], Federico Galvanin[1], A. John Blacker[2,3], Philip W. Dyer[2,4], Yiping Shi[2,4], C. Richard A. Catlow[2] and Asterios Gavriilidis[1,2], *(1)University College London, United Kingdom, (2)UK Catalysis Hub, United Kingdom, (3)University of Leeds, United Kingdom, (4)Durham University, United Kingdom*.

Stable Cu/C Catalysts for Selective Hydrogenation of Hydroxyacetone to 1,2-Propanediol
Martina Cazzolaro[1], Rik De Clercq[2], Jørgen Svendby[1], Jia Yang[1], Matthias Beier[2], Esben Taarning[2] and De Chen[1], *(1)Norwegian University of Science and Technology, Norway, (2)Haldor Topsøe A/S, Denmark*.

Synthesis and Characterization of a Novel High Surface Area Catalyst Support: GO and RGO Supported on Activated Carbon from Sugarcane Straw
Fabiana M. T. Mendes[1], Paulo Victor C. de Azevedo[1], Daniel R. da Silva[1], Suzana B. Peripolli[2] and Deborah V. Cesar[2], *(1)Instituto Nacional de Tecnologia, Brazil, (2)Universidade do Estado do Rio de Janeiro – UERJ, Brazil*.

Esterification of Glycolic Acid with Heterogeneous Catalyst By Reactive Distillation
Clemence Nikitine, Carole Mutschler and Pascal Fongarland, *CNRS / CPE Lyon / UCBL, France*.

Effect of Ce Content in 4-Azobisphenol Presence in Nanoreactors Au@CeO_2 and Au@Ce_xZr_yO during Reduction of 4-Nitrophenol to 4-Aminophenol.
Andrey V. Simakov[1] and Sandra Beatriz Aguirre[2], *(1)Universidad Nacional Autónoma de México, Centro de Nanociencias y Nanotecnología, Mexico, (2)CNyN- Universidad Nacional Autonoma de Mexico, Mexico*.

Sandwiched SiO_2@Ni@ZrO_2 As a Coke Resistant Nanocatalyst for Dry Reforming of Methane
Fei Yu, *Mississippi State University, USA*.

Nanosized Au Supported on MgO-CeO_2 for Preferential Oxidation of CO in Hydrogen Stream
Yu-Wen Chen, *National Central University, Taiwan*.

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Catalytic CO Oxidation over Metal Supported CeO_2 Nanocrystals
Kwangjin An, *Ulsan National Institute of Science and Technology(UNIST), Korea, Republic of (South)*.

Catalytic Extraction of Biofuels from Lignocellulosic Biomass through Anaerobic Digestion
Collins Akor and Gary Sheldrake, *Queens University Belfast, UK, United Kingdom*.

Parallelization of Electrocatalytic Oxygen Evolution Reactions As a New Breakthrough
Minyeong Je, Seulgi Ji and Heechae Choi, *University of Cologne, Germany*.

Enhanced Catalytic Performance for the NH_3-SCR of NO in Simulated Diesel Exhaust over Ce Doping to Cu-SAPO-18 Catalysts
Qing Ye, *College of Environmental and Energy Engineering, Beijing University of Technology, China*.

A Highly Selective Catalyst of $Co/La_4Ga_2O_9$ for CO_2 Hydrogenation to Ethanol
Kang An, Jinnan Zheng, Jiaming Wang and Yuan Liu, *Tianjin University, China*.

Ordered Macroporous α-Alumina As Catalyst Support for Enhanced Silver Nanoparticle Stability
Petra H. Keijzer, Jeroen E. van den Reijen, Claudia J. Keijzer, Krijn P. de Jong and Petra E. de Jongh, *Utrecht University, Netherlands*.

In Search of the Optimum Catalyst for OCM
Robert Schucker and Katarzyna Derrickson, *SABIC Corporate Research, USA*.

Enhanced Hydrogenation of Dimethyl Oxalate to Ethylene Glycol over Indium Promoted Cu/SiO_2
Xinbin Yu and Christopher T. Williams, *University of South Carolina, USA*.

Relations in Surface Oxygen Vacancy Formation Energy of Metal Oxides from Density Functional Theory Calculations
Yoyo Hinuma[1,2], Takashi Toyao[3], Takashi Kamachi[4,5], Zen Maeno[3], Satoru Takakusagi[3], Shinya Furukawa[3,5], Ichigaku Takigawa[3,6] and Ken-ichi Shimizu[3,5], *(1)Chiba University, Japan, (2)National Institute for Materials Science, Japan, (3)Hokkaido University, Japan, (4)Fukuoka Institute of Technology, Japan, (5)Kyoto University, Japan, (6)RIKEN, Japan*.

Spillover and Deactivation Studies of Os Promoted Co Fischer-Tropsch Catalysts
Neil Coville, *University of the Witwatersrand, South Africa*.

Synthesis of ZSM-5 Zeolite Via Fluoride Route: Impact of Synthesis Parameters on the MTO Catalytic Performance
Cristina Megías-Sayago and Benoît Louis, *University of Strasbourg, France*.

Role of CO_2 during Oxidative Dehydrogenation of Propane over Bulk and Activated-Carbon Supported Cerium and Vanadium Based Catalysts
Petar Djinovic[1], Janez Zavasnik[2,3], Janvit Terzan[1] and Ivan Jerman[1], *(1)National Institute of Chemistry, Slovenia, (2)Jožef Stefan Institute, Slovenia, (3)Max Planck Institut für Eisenforschung, Germany*.

Preparation of Single-Site Ti on SiO_2 for Propylene Epoxidation Using Surface Self-Limiting Reaction
Zheng Lu[1], Zhuoran Gan[2], Tianpin Wu[1], Heath Turner[3] and Yu Lei[2], *(1)Argonne National Laboratory, USA, (2)The University of Alabama in Huntsville, USA, (3)University of Alabama - Huntsville, USA*.

Mechanistic Insights into Homogeneous "CO-Free" Carbonylation Reactions
Robert Geitner, Andrei Gurinov, Marc Baldus and Bert M. Weckhuysen, *Utrecht University, Netherlands*.

Dehydrogenation of Ethane Via the Redox Mechanism over Ba-Doped $LaMnO_3$ Perovskite in the Presence of Steam
Hikaru Saito[1], Yukiko Hosono[1], Hirofumi Seki[1], Takuma Higo[1], Shuhei Ogo[1], Shun Maeda[2], Kunihide Hashimoto[2] and Yasushi Sekine[1], *(1)Waseda University, Japan, (2)Kubota Corp., Japan*.

Visible-Light Photoactive BiOCl Nanosheets Prepared By a Facile Solution Chemistry Method
Juanjuan Liu and Jielin Zhou, *Hangzhou Dianzi University, China*.

Low Temperature Selective Oxidation of Methane to Methanol Using Oxygen-Hydrogen As Oxidant
Yingluo He, Koki Ueda, Yusuke Imai, Guohui Yang, Yoshiharu Yoneyama and Noritatsu Tsubaki, *University of Toyama, Japan*.

Active-Site Engineering of Isolated Metal Atoms for CO_2 Hydrogenation to Formic Acid
Kohsuke Mori, Shinya Masuda and Hiromi Yamashita, *Osaka University, Japan*.

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Template-Free Synthesis of Highly Crystalline Non-Aggregated FAU-Type Nanocrystals for Advanced Catalysts
He Han[1,2], Xinwen Guo[1], Chunshan Song[1,3] and Michael Tsapatsis[2,4], *(1)Dalian University of Technology, China, (2)University of Minnesota, USA, (3)Pennsylvania State University, USA, (4)Johns Hopkins University, USA*.

Highly Selective Cubic Cu_2O Nanocrystal Catalysts for Propylene Epoxidation with Molecular O_2
Wei Xiong[1] and Weixin Huang[2], *(1)University of Science and Technology of China, Hefei 230026 (P. R. China), China, (2)University of Science and Technology of China, Hefei 230026, P. R. China., China*.

Transition Metals Modified HZSM-5 for Ethane Aromatization: Kinetic Approach to the Early-Stage Reactivity and Stability
Yizhi Xiang, Siavash Fadaeerayeni, Genwei Chen, Hossein Toghiani and Tingyu Liang, *Mississippi State University, USA*.

Gasification of Radical Coke in Steam and Steam-Hydrogen Atmospheres over Manganese-Chromium Oxides
Maxim Bukhovko[1], Lu Yang[2], Liwei Li[3], Andre Malek[3], Robert J. Davis[2], Pradeep Agrawal[4] and Christopher Jones[1], *(1)Georgia Institute of Technology, USA, (2)University of Virginia, USA, (3)The Dow Chemical Company, USA, (4)Michigan Technological University, USA*.

Photocatalytic Seawater Splitting without Sacrificial Reagents Under Visible Light Irradiation Via Pt/GaP-C_3N_4 nanocomposites
Han Dang, *National Taiwan University, Taiwan*.

Synergistic Effect of High Frequency Ultrasound with CuO Catalyst
Prince Amaniampong[1], Quang Thang Trinh[2], Matthew Sherburne[3] and Francois Jerome[1], *(1)University of Poitiers, France, (2)Cambridge Centre for Advanced Research and Education in Singapore, Singapore, (3)University of California-Berkeley, USA*.

Identifying the Structure Evolution of Iron-Based Catalysts for Fischer–Tropsch to Produce Olefins By in Situ XRD
Feng Xiong, Hongbin Xu, Yingcong Pang and Jianqiang Wang, *Sinopec Shanghai Research Institute of Petrochemical Technology (SRIPT), China*.

Unique Features of H_2 Desorption on Au-, Ag-, Cu-Based Alloy Surfaces
Huiling Zheng[1], Zhen Zhao[1,2], Hao Li[3] and Graeme Henkelman[3], *(1)China University of Petroleum-Beijing, China, (2)Shenyang Normal University, China, (3)University of Texas at Austin, USA*.

Synergistic Catalysis of Metal Nanoparticles and Acid Sites Integrated within UiO-66 for Biomass Conversion
Qionghao Xu, Deli Chen, Yanghe Fu, Qiang Xiao, Fumin Zhang and Weidong Zhu, *Zhejiang Normal University, China*.

Chemical Deactivation of Vanadia-Based SCR Catalysts By Alkali and Heavy Metals
Yue Peng, Dong Wang and Junhua Li, *Tsinghua University, China*.

Electron Deficient Mononuclear $Pt_1(0)$ Catalyst with Ultra-High Performance in Hydrosilylation
Kairui Liu[1], Xing Shen[1], Huixiang Li[1], Shi Bai[2] and Z. Conrad Zhang[1], *(1)Dalian Institute of Chemical Physics, China, (2)University of Delaware, USA*.

Syngas Conversion into Hydrocarbons over Bifunctional Catalyst: Effect of the Density of Contact between Cu-ZnO-Al_2O_3 and SAPO-34
Valentin L'hospital[1], Christophe Coudercy[2], Ludovic Pinard[1], Thomas Belin[1], Yannick Pouilloux[1], Pascal Fongarland[3], Stéphane Loridant[2] and Anthony Le Valant[1], *(1)IC2MP, Institute of Chemistry of Poitiers: Materials and Natural Resources/University of Poitiers, France, (2)IRCELYON, France, (3)CPE LYON 1, France*.

Chemical Looping: An Innovative Approach to Selective Oxidation of H_2S
Axel Löfberg, Tanushree Kane and Jesus Guerrero, *UCCS - UMR CNRS 8181, France*.

Catalysts Development for Converting Shale Gas Condensate to Higher Value Chemicals
Jun Wang, Kaiwalya Sabnis, Alla Khanmamedova, Dustin Farmer, Jianguo Fan, Scott Stevenson and Travis Conant, *SABIC, USA*.

The Effect of Strong Metal Support Interaction (SMSI) on Pt-Ti/SiO_2 and Pt-Nb/SiO_2 Catalysts for Propane Dehydrogenation and Ethylene Hydrogenation
Johnny Zhu Chen[1], Xin Yang[1,2], Junxian Gao[1], Paige Probus[1], Wei Liu[3], Xianli Wu[1,4], Evan Wegener[5], A. Jeremy Kropf[5], Dmitry Zemlyanov[1], Guanghui Zhang[6] and Jeffrey T. Miller[1], *(1)Purdue University, USA, (2)Huaqiao University, China, (3)Chinese Academy of Sciences, China, (4)Zhengzhou University, China, (5)Argonne National Laboratory, USA, (6)Dalian University of Technology, China*.

Removal of Oxygenates from Fischer-Tropsch Synthesized Water Via Aqueous Phase Reforming
Shetian Liu, *Southwest University, China*.

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Design of Ultrasmall Ni_2P Nanoparticles with Enhanced Hydrodesulfurization Properties
Guan Huang, Zhichao Sun, Zhiquan Yu, Ying-Ya Liu, Yao Wang, Anjie Wang and Yongkang Hu, *Dalian University of Technology, China*.

Nickel Based N-Doped Graphene Catalyst for Electrochemical Reduction of CO_2 to CO
Shuyu Liang and Qiang Wang, *Beijing Forestry University, China*.

Real-Time Diffuse-Reflectance Spectroscopy Analysis of Pd Supported on CeO_2-ZrO_2 during Oxygen Storage/Release Cycles
Ayumi Fujiwara[1], Hiroshi Yoshida[1,2], Junya Ohyama[1,2] and Masato Machida[1,2], *(1)Kumamoto University, Japan, (2)Kyoto University, Japan*.

The Effect of Rhenium in the Conversion of Glycerol to Mono-Alcohols over Nickel Catalysts Under Continuous Flow Conditions
Mzamo Shozi[1], Sooboo Singh[1], Alisa Govender[2], Pheladi Mohlala[2], Venkata Dasireddy[3] and Holger Friedrich[1], *(1)University of KwaZulu-Natal, South Africa, (2)Sasol South Africa, South Africa, (3)National Institute of Chemistry, Slovenia*.

Metal–Support Interactions on Supported Pd Catalysts - Formation of Highly Active Pd-Core–Pd Oxide-Shell Nanoparticles for Methane Combustion
Kazumasa Murata[1], Daichi Kosuge[1], Junya Ohyama[2], Yuji Mahara[1], Yuta Yamamoto[1], Shigeo Arai[1] and Atsushi Satsuma[1], *(1)Nagoya University, Japan, (2)Kumamoto University, Japan*.

A Surface Science Investigation of Cu-Zn-Zr Catalysts for Methanol Synthesis from CO_2
Francielle Marcos[1], Lili Lin[2], Luis Betancourt[2], Sanjaya Senanayake[2], Jose A. Rodriguez[2], Jose M. Assaf[3], Reinaldo Giudici[1] and Elisabete M. Assaf[4], *(1)University of Sao Paulo, Brazil, (2)Brookhaven National Laboratory, USA, (3)Federal University of São Carlos, Brazil, (4)University of São Paulo, Brazil*.

Novel Catalytic Strategies for the Production of High-Performance Lubricant Base Oils from Biomass
Sibao Liu, Andrew Danielson, Basudeb Saha and Dionisios G. Vlachos, *University of Delaware, USA*.

ZIF-67 Derived Catalysts for Furfural Hydrogenation
Jun Gyeong Lee[1] and Kwangjin An[2], *(1)Ulsan national institute of science and technology (UNIST), Korea, Republic of (South), (2)Ulsan National Institute of Science and Technology(UNIST), Korea, Republic of (South)*.

Photocatalysis with Main Group Sulfides
José C. Conesa[1], Raquel Lucena[1], Cristina Tapia[1,2], Carmen Jarne[1,3], Gabriel Luna[1], Marcos Pita[1] and Antonio L. de Lacey[1], *(1)Consejo Superior de Investigaciones Científicas, Spain, (2)Univ. Grenoble Alpes, CNRS, CEA, IRIG, France, (3)AITIIP Technology Center, Spain*.

Low-Temperature Conversion of C1 Molecules with 2D Catalysts
Dehui Deng, *Dalian Institute of Chemical Physics, Chinese Academy of Sciences, China*.

Granulated Biomass-Based Carbon Catalysts for Wastewater Treatment Applications
Riikka Juhola[1], Anne Heponiemi[1], Sari Tuomikoski[1], Tao Hu[1] and Ulla Lassi[2], *(1)University of Oulu, Finland, (2)Kokkola University Consortium Chydenius, Finland*.

Methyl Lactate Dehydration Enhancement Via in-Situ Amine Titration
Yutong Pang[1,2], M. Alexander Ardagh[2,3], Anargyros Chatzidimitriou[1,2], Bess Vlaisavljevich[4] and Paul J. Dauenhauer[1,2,3], *(1)National Science Foundation Center for Chemical Innovation, USA, (2)The University of Minnesota - Twin Cities, USA, (3)University of Delaware, USA, (4)University of South Dakota, USA*.

Modeling the Te-O Moieties in the Mo-V-Te-Nb-O Catalyst
Juan Manuel Arce Ramos[1], Graham Rugg[1], Alexander Genest[1] and Notker Rösch[2], *(1)Agency for Science, Technology and Research, Singapore, (2)Technische Universitaet Muenchen, Germany*.

Direct Conversion of Carbon Dioxide to Lower Olefins and Aromatics over Tandem Catalysts
Zelong Li[1] and Can Li[2], *(1)Lanzhou University, China, (2)Dalian Institute of Chemical Physics, Chinese Academy of Sciences, China*.

Environment, Stability and Reactivity of External Surface Sites of the ZSM-5 Zeolite
Laureline Treps, Theodorus De Bruin and Céline Chizallet, *IFPEN, France*.

Controlled Synthesis of Pyridinic N Species and Its Catalytic Role in Acetylene Hydrochlorination
Xianliang Qiao, Qingxin Guan, Fang Zou, Yu Zhao, Yuping Liu, Xiaoqi Yan and Wei Li, *Nankai University, China*.

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Investigation on Surface Properties of the Ex-Situ Pre-sulfurization Hydrotreating Catalyst
Yulan GAO and Xiangchen Fang, *Dalian Research Institute Of Petroleum And Petrochemicals, Sinopec, China*.

Organic Structure-Directing Agents (OSDAs)-Free Synthesis of Pore-Opened Mordenite Zeolite for Ethanol Dehydration
Ploychanok Iadrat[1], Thidarat Imyen[2], Wannaruedee Wannapakdee[2] and Chularat Wattanakit[2], *(1)Vidyasirimedhi Institute of Science and Technology, Thailand, (2)Vidyasirimedhi Institute of Science and Technology (VISTEC), Thailand*.

Modified Acid-Base ZSM-5 Derived from Core-Shell ZSM-5/LDH Composites for the Production of Light Olefins through Catalytic Cracking of Pentane
Chadatip Rodaum[1], Anawat Thivasasith[1], Duangkamon Suttipat[1], Sitthiphong Pengpanich[2] and Chularat Wattanakit[1], *(1)Vidyasirimedhi Institute of Science and Technology (VISTEC), Thailand, (2)PTT Global Chemical Public Company Limited (PTTGC), Thailand*.

Effective Hydrogenation of Styrene in Water over Cesium Salt of Iron Substituted Posphomolybdate
Jaykumar Patel[1] and Anjali Patel[2], *(1)The Maharaja Sayajirao University of Baroda, India, (2)The Maharaja Sayajirao University of Baroda., India*.

Alginate-Based Materials As Chiral Heterogeneous Organocatalysts
Nathalie Tanchoux[1], Daniel Antonio Aguilera[1,2], Françoise Quignard[1] and Luca Bernardi[2], *(1)Institut Charles Gerhardt Montpellier, France, (2)Università di Bologna, Italy*.

Quantification of Cobalt Silicate Formed during Fischer-Tropsch Synthesis Under Intensified Microchannel Conditions
Heinz Robota, *Velocys, USA*.

Oxidative Dehydrogenation of Propane to Propylene over $VO_x/CaO\text{-}\gamma Al_2O_3$ in Gas Phase Oxygen Free Conditions
Afees Ayandiran and Mohammad Hossain, *King Fahd University of Petroleum & Minerals, Saudi Arabia*.

Activity of NO Selective Catalytic Reduction By Ammonia over MnV_2O_x/TiO_2 Catalysts
Liyun Song, Shuangye Li, Jian Li, Wenge Qiu and Hong He, *Beijing University of technology, China*.

Structure and Catalysis of Two-Dimensional Metal Nano Particles Intercalated between Graphite Layers
Masayuki Shirai, Mika Sodeno, Shusuke Kato and Hidetaka Nanao, *Iwate University, Japan*.

Kraft Lignin-Derived Sulfonated Carbon As Catalyst in Microwave-Mediated Fructose Dehydration
Renan Nunes[1], Lígia Vieira[2], Gabrielle Reis[1], Dalmo Mandelli[1] and Wagner Carvalho[1], *(1)Federal University of ABC, Brazil, (2)Federal Fluminense University, Brazil*.

La (Ce) Doped TiO_2 for Partial Oxidation of Methanol to Methyl Formate Under Visible Light Irradiation
Xuzhuang Yang, *Inner Mongolia University, China*.

Development of a Multi-Site Kinetic Model for NH_3-SCR of NOx on CHA Cu-SAPO-34: Impact of Active Site Configurations and Locations
Guillaume Petaud, Sonia Gil, Anne Giroir-Fendler and Melaz Tayakout-Fayolle, *University of Lyon, France*.

A Versatile Route to Fabricate Single Atom Catalysts with High Chemoselectivity and Regioselectivity in Hydrogenation
Xiaohui He, *Sun Yat-sen University, China*.

Transfer Hydrogenation of Carbonyl Group Catalyzed By $CePO_4$ Promoted Ni_3P
Zhiquan Yu, Fanxing Meng, Yao Wang, Zhichao Sun, Ying-Ya Liu, Chuan Shi and Anjie Wang, *Dalian University of Technology, China*.

An on-Line Optimization for the Dry Reforming Process Via Density Functional Theory-Based Analyses
Siriwimol Somdee, Mongkol Lerdpongsiripaisarn and Supareak Praserthdam, *Chulalongkorn University, Thailand*.

Promoting CO_2 Methanation Reactivity on Ru/TiO_2 Catalysts By Exposing (001) Facets of TiO_2
Yong Men, *Shanghai University of Engineering Science, China*.

Preparation of $Au_xMn_y/Meso\text{-}Fe_2O_3$ from Intermetallic Compounds and Their Catalytic Performance for Benzene Oxidation
Jia Wang and Hongxing Dai, *College of Environmental and Energy Engineering/Beijing University of Technology, China*.

Synthesis of Fumed Silica-Supported Ni and Cu Based Catalysts for CO_2 Methanation Reaction
Ahmed Aheed Ali and Anand Kumar, *Qatar University, Qatar*.

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Manipulating Structures and Chemical Bonding in Nitrides Using First-Principles Methods for Ammonia Production
Bin Liu[1], Chaoran Huang[1], Nannan Shan[1], Viktor Chikan[1] and Peter Pfromm[2], *(1)Kansas State University, USA, (2)Washington State University, USA*.

Excellent Selective Catalytic Reduction of NO_x By NH_3 over Hierarchical Cu/SAPO-34
Zhibin Li, *Heilongjiang University, China*.

Bio-Fuels Production from Hydroprocessing Castor Oil By One-Pot Process and Two-Step Process
Siyang Liu[1,2], Bohan Chai[1], Kai Yang[1] and Wei Li[2], *(1)Tianjin Bineng Science and Technology Co., Ltd., China, (2)Nankai University, China*.

Direct CO_2 Hydrogenation to Ethanol over Supported Co_2C Catalysts: Studies on Support Effects and Mechanism
Shunan Zhang[1], Xiaofang Liu[1], Zhaoxuan Wu[1], Zilong Shao[1], Hui Wang[1] and Yuhan Sun[1,2], *(1)Shanghai Advanced Research Institute, Chinese Academy of Sciences, China, (2)School of Physical Science and Technology, Shanghai Tech University, China*.

3DOM CeO_2-Supported Ru_3M (M = Au, Pd, Pt) Alloy Nanoparticles with Improved Catalytic Activity and Chlorine-Tolerance in Trichloroethylene Combustion
Hongxing Dai, *College of Environmental and Energy Engineering/Beijing University of Technology, China*.

Study of Diffusional Limitation and Confinement Effect in HY and HBEA Zeolites in Hydro-Isomerization of Long Paraffins
Celine Pagis[1,2], Ana-Rita Morgado[1,2], Christophe Bouchy[1], Mathias Dodin[1], Raquel Martinez-Franco[1], Yves Schuurman[2], Alain Tuel[2] and David Farrusseng[2], *(1)IFP Energies nouvelles, France, (2)CNRS, Université de Lyon1, France*.

Influence of MnO_x in Enhancing Activity and Coke Resistance of Ceria-Based Catalysts during Methane Dry Reforming
Vikram Sagar Tatiparthi and Albin Pintar, *National Institute of Chemistry, Slovenia*.

Ab Initio Investigation of the Respective Stability of Silicogermanates and Their (Alumino)Silicates Counterparts
Elsy EL Hayek[1,2], Bogdan Harbuzaru[2], Johan Martens[1] and Céline Chizallet[2], *(1)KU Leuven, Belgium, (2)IFP Energies nouvelles, France*.

Fundamental Insights in Methane Dehydroaromatization: The Effect of Hydration
Mustafa Caglayan[1], Abhishek Dutta Chowdury[1], Alexey Pustovarenko[1], Alessandra Lucini Paioni[2], Genrikh Shterk[1], Edy Abou-Hamad[1], Marc Baldus[2] and Jorge Gascon[1], *(1)King Abdullah University of Science & Technology, Saudi Arabia, (2)Utrecht University, Netherlands*.

Defect Engineering of Ceria As Supports and Catalysts for Enhanced Catalysis
Meijun Li, Jisue Moon, Si Luo, Sheng Dai and Zili Wu, *Oak Ridge National laboratory, USA*.

Following the Graphitization of Carbon Deposits during the Cobalt-Based Fischer-Tropsch Synthesis with Soft X-Ray, Infrared, and Raman Microscopy
Iris ten Have, Ilse van Ravenhorst, Florian Meirer and Bert M. Weckhuysen, *Utrecht University, Netherlands*.

Reviving Hammett and Taft Equations for CH Activation Chemistry: Mechanism Identification & Catalyst Design
Shaama Mallikarjun Sharada and Zhenzhuo Lan, *University of Southern California, USA*.

Effect of the Properties of Zeolite H-MFI on Isopentyl Acetate Formation By Esterification
Maria Eduarda Ribeiro, Patricia Lima, Karen Franke and Dilson Cardoso, *Federal University of Sao Carlos, Brazil*.

Reactions in Confined Space: Can Surface Science Contribute?
Hans-Joachim Freund, *Fritz Haber Institute of the Max Planck Society, Germany*.

Novel Photocatalyst Incorporating Ni-Co Layered Double Hydroxides with P-Doped CdS for Enhancing Photocatalytic Activity Towards Hydrogen Evolution
Songsong Li and Lei Ge, *China University of Petroleum (Beijing), China*.

Ceria Nanowire-Based Catalysts for CO_2 Conversion to Methanol
Rui Zhang and David Chadwick, *Imperial College London, United Kingdom*.

Promotional Effect of Mo on Enhancing the So_2 Tolerance of Nanostructured Bimetallic La_2O_3-Al_2O_3 Catalysts for CO-SCR Reaction
Lais F Oton[1], Alcineia Oliveira[1], João Pedro Nascimento[1], Rossano Lang[2], Jesuina CS Araujo[3], Jose M C Bueno[4] and Ana Paula S Oliveira[1], *(1)Universidade Federal do Ceara, Brazil, (2)Universidade Federal de São Paulo, Brazil, (3)Universidade Federal do Espírito Santo, Brazil, (4)Universidade Federal de São Carlos, Brazil*.

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A Mechanistic Investigation into the Dual Decomposition Pathways of Aspartic Acid on Ni(100)
Michael Radetic and Andrew J. Gellman, *Carnegie Mellon University, USA*.

A Complete Oxide-to-Sulfide Transition Structure of $NiMoS_2$ Catalyst Supported on Al-PILC and Its Stability Under Air Exposure
Ferensa Oemry[1], Indri Badria Adilina[1], Nino Rinaldi[1], Fauzan Aulia[1], Anna Kroner[2] and Elizabeth Shotton[2], *(1)Indonesian Institute of Sciences, Indonesia, (2)Diamond Light Source Ltd., United Kingdom*.

Stochastic and Numerical Modeling of TAP Reactors with Shadowing Effects
Brecht Denis[1], Denis Constales[1], Vladimir V Galvita[1] and Gregory Yablonsky[2], *(1)Ghent University, Belgium, (2)Washington University in St. Louis, USA*.

Synthesis of Edible Vegetable Oils Enriched with Healthy 1,3-Diglycerides Using Homogeneous and Heterogeneous Catalysis
Liza Dosso, Pablo J. Luggren and J. Isabel Di Cosimo, *Catalysis Science and Engineering Research Group (GICIC) – INCAPE (UNL-CONICET), Santa Fe, Argentina*.

Novel Nanomaterials for the Oxidation of Cyclic Hydrocarbons Under Mild Conditions.
Baozhai Han and Marco Conte, *The University of Sheffield, United Kingdom*.

The Effect of Meso-Layer Thickness on the Behavior of Micro-Mesoporous Composites in the Conversion of Heavy Crude Oil
Jinyu Zheng, *RIPP, Sinopec, China*.

Selective Removal of Gasoline Sulfur Model Compounds Under Mild Conditions over NiW/Al_2O_3-TiO_2 Modified By Surfactants
Jorge Noé Diaz de León Hdez and Sergio Fuentes-Moyado, *Universidad Nacional Autónoma de México, Centro de Nanociencias y Nanotecnología, Mexico*.

Formation of Hydrogen from Adsorbed Ethanol on Transition Metal-Tin Composite Oxide
Hiroyuki Yamaura, Motoki Matsuoka, Syuhei Yamaguchi, Hidenori Yahiro, Masami Mori and Yoshihiko Sadaoka, *Ehime University, Japan*.

Specific Formation of Immiscible RhCu Alloy on TiO_2 Assisted By Hydrogen Spillover and Its Catalysis
Shinya Masuda[1], Kazuki Shun[1], Kohsuke Mori[1,2], Yasutaka Kuwahara[1,2,3] and Hiromi Yamashita[1,2], *(1)Osaka University, Japan, (2)Kyoto University, Japan, (3)JST, PRESTO, Japan*.

A Study of NOx Removal Efficiency of Marine SCR Catalyst Coated on Metal Honeycomb Substrate
Kyoung-Sil Shim[1] and Tae-min Kim[2], *(1)E&D corp., Ltd., Korea, Republic of (South), (2)E&D corp. Ltd, Korea, Republic of (South)*.

Valorization of Unsaturated Dicarboxylic Acids Obtained from Organic Municipal Wastes
Jean Caillon[1], Gilles Berhault[1], Dorothée Laurenti[1], Jean-Marc Millet[1] and Jean-Luc Dubois[2], *(1)Institut de Recherches sur la Catalyse et l'Environnement de Lyon (IRCELYON), France, (2)Arkema, France*.

Highly Dispersed Ni Particles on Mesoporous Silica Monoliths As Active and Stable Catalysts in the Dry Reforming of Methane Reaction
Oscar Daoura[1,2], Giulia Fornasieri[3], Maya Boutros[2], Nissrine El HASSAN[4], Cyril Thomas[1], Pascale Massiani[1], Anne Bleuzen[3] and Franck Launay[1], *(1)Sorbonne Université - CNRS, France, (2)Lebanese University, Lebanon, (3)Université Paris-Sud, Université Paris-Saclay, France, (4)University of Balamand, France*.

Crime Scene Investigation: Chemical Imaging of Catalyst Deactivation
Ruoyu Xu, Liqun Kang and Feng Ryan Wang, *University College London, United Kingdom*.

Application of Plasmonic Ag Catalyst Supported on Porous Silica
Yukari Yamazaki[1], Priyanka Verma[1], Yasutaka Kuwahara[1,2,3], Kohsuke Mori[1,2] and Hiromi Yamashita[1,2], *(1)Osaka University, Japan, (2)Kyoto University, Japan, (3)JST, PRESTO, Japan*.

Ni-Promoted Todorokite As Efficient Catalyst for CO_2 Methanation
Antonio Chica, *Spanish National Research Council-CSIC, Spain*.

Green Catalysis: Syntheses and Anti-Cancer Evaluation of Some New 2-Heterostyrylbenzimidazoles Using Triacetylborate-Glycerol.
Rama Devi Bhoomireddy, Ashok Kumar Taduri and Mahesh Goud Bakkolla, *Jawaharlal Nehru Technological University Hyderabad, India*.

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Enhanced Catalytic Activity of Ga Supported on Mesoporous TiO_2 for Ethane Dehydrogenation
Tuan Ngoc Phan and Chang Hyun Ko, *Chonnam National University, Korea, Republic of (South)*.

Ga-Doped and Pt-Loaded Porous TiO_2-SiO_2 for Photocatalytic Nonoxidative Coupling of Methane
Shiqun Wu[1], Haijun Chen[2], Lingzhi Wang[1] and Jinlong Zhang[3], *(1)East China University of Science and Technology, China, (2)Nankai University, China, (3)East China University of Science & Technology, China*.

Catalytic Production of Green Ammonia
Shik-Chi Edman Tsang, *University of Oxford, United Kingdom*.

Using Scaling Relations to Model CO Oxidation on Pd Nanoparticles
Elisabeth Dietze[1], Philipp Plessow[1], Felix Studt[1] and Henrik Grönbeck[2], *(1)Karlsruhe Institute of Technology, Germany, (2)Chalmers University of Technology, Sweden*.

Fe-Containing N-Doped Porous Carbon for Isobutane Dehydrogenation
Baohua Liu[1], Lingjun Chou[2] and Huanling Song[1], *(1)Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, China, (2)Suzhou Research Institute of LICP, Chinese Academy of Sciences, China*.

Synthesis of Aviation-Fuel through Oligomerization of Butene Mixture over Desilicated ZSM-5 Catalyst
Jong-Ki Jeon, Donggun Lee, Jaegyu Woo, Munjeong Kim, Jinwoo Kim, Huiji Ku and Seung Kyo Oh, *Kongju National University, Korea, Republic of (South)*.

Impact of Potassium Poisoning on the Intrinsic Reactivity of Vanadate Species in $V_2O_5/WO_3/TiO_2$ SCR-Catalyst
Pascal Granger, *University of Lille, France*.

Brønsted and Lewis Acid Catalyzed Conversion of Pulp Industry Waste Biomass to Levulinic Acid
Katja Lappalainen[1,2], Yue Dong[1] and Ulla Lassi[1,2], *(1)University of Oulu, Finland, (2)Kokkola University Consortium Chydenius, Finland*.

Structure-Activity Relationships of Manganese Oxides in Different Oxidation Reactions
Maik Dreyer, Justus Heese-Gärtlein, Stefanie Becker, Klaus Friedel Ortega and Malte Behrens, *University of Duisburg-Essen, Germany*.

Two-Dimensional Molybdenum Oxycarbide (2D Mo_2CO_x) Supported on Silica As a Highly Active and Stable Catalyst for the Dry Reforming of Methane
Alexey Kurlov[1], Evgeniya Deeva[1], Paula Macarena Abdala[1], Dmitry Lebedev[2], Athanasia Tsoukalou[1], Aleix Comas-Vives[3], Alexey Fedorov[1] and Christoph Müller[1], *(1)ETH Zürich, Switzerland, (2)ETH Zurich, Switzerland, (3)Autonomous University of Barcelona, Spain*.

The Shadowing Effect in Catalyst Activity
Juan Mirena[1], Evgeniy Redekop[2], Denis Constales[1], Gregory Yablonsky[3], John Gleaves[4] and Vladimir V Galvita[1], *(1)Ghent University, Belgium, (2)University of Oslo, Norway, (3)Washington University in St. Louis, USA, (4)Washington University, USA*.

Fe-Supported Catalysts for Low Temperature Fischer-Tropsch Synthesis
Cecile Daniel, Alain Tuel, Jean-Marc Millet, David Farrusseng and Yves Schuurman, *CNRS, Université de Lyon1, France*.

NO Reduction By CO Under Wet Oxidative Conditions over CoCuAl Mixed Oxides Derived from Hydrotalcite-like Compounds
Joudia Akil[1], Carmen Ciotonea[2], Sébastien Royer[3], Stéphane Siffert[1], Renaud Cousin[1] and Christophe Poupin[1], *(1)University of Opal Cost, France, (2)University of Lille, France, (3)Univ. Lille, CNRS, ENSCL, Centrale Lille, Univ. Artois, UMR 8181 - UCCS - Unité de Catalyse et Chimie du Solide, F-59000 Lille, France, France*.

Single-Step Conversion of Ethanol to n-Butene-Rich Olefins or Butadiene over Multifunctional $Ag/ZrO_2/SiO_2$ Catalysts with Tailored Metal and Lewis-Acid Sites
Vanessa Dagle[1], Austin Winkelman[1], Johnny Saavedra Lopez[1], Libor Kovarik[1], Mark Engelhard[1], Nicholas R. Jaegers[1], Jian Zhi Hu[1], Yong Wang[2] and Robert A. Dagle[1], *(1)Pacific Northwest National Laboratory, USA, (2)Washington State University, USA*.

Data Analytics Search of New Catalytically Active Materials Based on DFT Calculated Property Descriptors.
Aliaksei Mazheika, *BasCat, Technische Universität Berlin, Germany*.

PH_3: A Versatile Intermediate for Large Scale Manufacture of Organophosphines Ligands and Catalysts
Eamonn Conrad and Dino Amoroso, *Solvay, Canada*.

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Organophosphate Neutralization By Tandem Photo-Thermal Catalysis with TiO_2 and Cu/SiO_2
Katelyn Alley, Quinn Cunneen and Dario Prieto, *Montana Technological University, USA*.

Ethylene Epoxidation over Ag-YSZ Composite Layers
Thomas Cavoué[1], Mathilde Rieu[2], Jean-Paul Viricelle[2], Mimoun Aouine[1], Antoinette Boreave[1], Laurence Burel[1], Francisco Cadete Santos Aires[1], Angel Caravaca[1] and Philippe Vernoux[1], *(1)IRCELYON, France, (2)Mines Saint-Etienne, France*.

Effects of Metal Doping and Particle Shape in Nanocrystal-Based Catalysts for the Direct Synthesis of Hydrogen Peroxide
Silke Behrens[1] and Sheng Wang[2], *(1)Karlsruhe Institute of Technology, Germany, (2)IKFT/Karlsruhe Institute of Technology, Germany*.

The Effect on Crystal Growth of Anatase TiO_2 Nanoplates {001} Facets
Renan Figueiredo, *Universidade Tiradentes - UNIT, Brazil; Instituto de Tecnologia e Pesquisa - ITP, Brazil*.

Increasing the Fraction of Metathesis Active Sites in MoO_3/SiO_2
Li Li and Susannah L. Scott, *University of California, USA*.

Enhancing N_2 Fixation and NH_3 Synthesis Via Dynamic Heterogeneous Catalysis
M. Alexander Ardagh[1,2], Manish Shetty[3], Shizhong Liu[2], Gerhard Wittreich[2], Omar Abdelrahman[2,4], Dionisios G. Vlachos[2] and Paul J. Dauenhauer[1,2], *(1)University of Minnesota, USA, (2)University of Delaware, USA, (3)Pacific Northwest National Laboratory, USA, (4)University of Massachusetts Amherst, USA*.

Effects of Initial Crystal Structure of Fe_2O_3 on Catalytic Performance for Syngas to Light Olefins
Yi Liu and Yi Zhang, *Beijing University of Chemical Technology, China*.

Synthesis, Characterization and Catalytic Performance of Co Substituted $LaMnO_3$ Perovskites for Propane Oxidation
Wenjun Zhu and Changhai Liang, *Dalian University of Technology, China*.

Cooperativity of Rh Complex and Organic Group on Silica Surface for Efficient Hydrosilylation of Olefins
Kyogo Maeda[1], Yohei Uemura[2], Kiyotaka Nakajima[3], Shinji Tanaka[4], Wang-Jae Chun[5] and Ken Motokura[1], *(1)Tokyo Institute of Technology, Japan, (2)Utrecht University, Netherlands, (3)Hokkaido University, Japan, (4)National Institute of Advanced Industrial Science and Technology, Japan, (5)International Christian University, Japan*.

Origin of Enhanced Activity of Gallium-Modified Alumina for Ethane Dehydrogenation
Sai Praneet Batchu[1], Hsuan-Lan Wang[1], Weiqing Zheng[1], Stavros Caratzoulas[2], Raul F. Lobo[1] and Dionisios G. Vlachos[1], *(1)University of Delaware, USA, (2)Catalysis Center for Energy Innovation (CCEI), University of Delaware, USA*.

Negatively Charged $Pt^{\delta-}$ clusters on WO_3-ZrO_2 promote the Isomerization of Heptane
Bin Zhang, Meng Wang and Ding Ma, *Peking University, China*.

Synergistic Effect between Cu and Pd in Cu-Pd Nanoparticles for Direct Synthesis of 1,4-Butanediol Via Hydrogenation of Succinic Acid
Son Le Dinh and Shun Nishimura, *Japan Advanced Institute of Science and Technology, Japan*.

Calcium Zirconate Photocatalysts for Reduction of CO_2 Using Water
Tomoko Ishii, *Kyoto University, Japan*.

Can Single Cu(II) Sites Introduced into ZSM-5 Zeolite Activate Methane?
Anton Gabrienko[1,2], Svetlana Yashnik[2] and Alexander Stepanov[1,2], *(1)Novosibirsk State University, Russian Federation, (2)Boreskov Institute of Catalysis, Russian Federation*.

A New Look on the Mechanism of Propylene Oligomerization on Zn-Containing Zeolites
Anton Gabrienko[1,2], Sergei Arzumanov[1,2] and Alexander Stepanov[1,2], *(1)Boreskov Institute of Catalysis, Russian Federation, (2)Novosibirsk State University, Russian Federation*.

***In Situ* Grown ZSM5 on Cu-ZnO-ZrO_2 Nanoparticles As a Novel Catalyst for Promoted CO_2 Conversion and Selectivity to Liquid Fuels**
Xin Fang, Bin Zhang, He Jia, Yisong Wang and Tao Du, *Northeastern University, China*.

Design and Preparation of Bi-Based Z-Scheme Photocatalyst with Good NO Removal Efficiency
Yuefa Jia, Chunli LIU and Bowha Lee, *Hankuk University of Foreign Studies, Korea, Republic of (South)*.

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Excellent Bifunctional Catalyst for Syngas to Light Olefins Conversion: Achievement of High Olefin/Paraffin Ratio By Low-Si AlPO-18 Zeolites
Junjie Su[1], Haibo ZHou[1], Wenqian Jiao[1], Su Liu[1], Yang-Dong Wang[1], Zai-Ku Xie[2] and Mingyuan He[3], *(1)Shanghai Research Institute of Petrochemical Technology, SINOPEC Corp., China, (2)China Petrochemical Corporation (SINOPEC Group), China, (3)Shanghai Key Laboratory of Green Chemistry and Chemical Processes, School of Chemistry and Molecular Engineering, East China Normal University, China*.

Synthesis of Lower Olefins through Hydrogenation of Carbon Dioxide over Active Carbon-Supported Iron Catalyst
Kenji Asami, Mio Isshiki and Ryosuke Oba, *The University of Kitakyushu, Japan*.

Correlating C=C, C=O and C=N Hydrogenation Activity with Hydrogen Binding Energies on Different Ni/Fe Ratio Bimetallic Catalysts
Boyang Liu, Diwen Xiao, Yu Wang, Pei Jia, Ning Huang, Xiaocheng Lan and Tiefeng Wang, *Tsinghua University, China*.

NO_x Reduction By C_3H_6 and CO over High Active Pd Catalyst Supported on Perovskite at Low Temperature.
Yuki Omori and Takuma Higo, *Waseda University, Japan*.

Study of Nickel Promoted Mo_2c/Al_2O_3 Catalysts in Dry Methane Reforming
Tong Li, *Ningbo Institute of Material Technology and Engineering, Chinese Academy of Sciences, China*.

Influence of Mg on the Performance of $Pd/MgO/Al_2O_3$ Catalysts for CO Coupling to Dimethyl Oxalate
Zhijian Tian[1] and Lin Yang[2], *(1)Dalian Institute of Chemical Physics, Chinese Academy of Sciences, China, (2)University of Chinese Academy of Sciences, China*.

Carbon Black As Attractive Catalyst Support for Fischer-Tropsch Synthesis to Olefins
Stephan Schultheis, Alfons Drochner and Bastian J.M. Etzold, *Technische Universität Darmstadt, Germany*.

Direct Synthesis of Hierarchical FeCu-ZSM-5 Zeolite with Wide Temperature Window in Selective Catalytic Reduction of NO By NH_3
Yuanyuan Yue, Ben Liu and Nangui Lv, *Fuzhou University, China*.

Temperature-Programmed Techniques Study on Active Sites of Cs-Promoted Ru/γ-Al_2O_3 Catalysts for Mild Ammonia Synthesis
Shih-Yuan Chen, *National Institute of Advanced Science and Technology (AIST), Japan*.

Acetal Synthesis between Butanol and Butanal over Ru/MOF: An FTIR Focused Study on MOF Framework Effect
Jerry Pui Ho Li[1,2], Liang Zhu[1], Songwei Zhang[1], Jingpeng Zhao[3], Dan Wu[3], Willinton Yesid Hernández[3], Wenjuan Zhou[3], Vitaly Ordomsky[3], Tao Li[1] and Yong Yang[1], *(1)ShanghaiTech University, China, (2)Queen's Belfast University, United Kingdom, (3)Solvay, China*.

Mimicking Bifunctional Metal/Supported Catalysts Properties in Graphenes Via Engineering Active Sites By Hydrogen Plasma Irradiation
Ana Primo[1], Antonio Franconetti[1], Monica Magureanu[2], Nicolae Bogdan Mandache[2], Cristina Bucur[3], Cristina Rizescu[3], Bogdan Cojocaru[3], Vasile Parvulescu[3] and Hermenegildo Garcia[1], *(1)Universitat Politécnica de Valencia, Spain, (2)National Institute for Lasers, Plasma and Radiation Physics, Romania, (3)University of Bucharest, Romania*.

Selective Aqueous Phase Hydrogenation of Succinic Acid to 1,4-Butanediol Using MO_x-Pd (M= Re, Mo) Supported Catalysts
Madjid Ouali[1], Maroua Bouchneb[2], Johan Alauzun[2], Hubert Mutin[2], Michèle Besson[1], Noémie Perret[1] and Catherine Pinel[1], *(1)CNRS / Université Claude Bernard Lyon1 / Université de LYON, France, (2)CNRS / université de Montpellier, France*.

$MnCr_2O_4$ Structure-Activity Relationship Doped with Zr^{4+} and Its NH_3-SCR Reaction Mechanism
Erhao Gao, *Zhejiang University, China*.

High Catalytic Activity of Oriented MoS_2 Nanoplatelets Supported on Few Layers of Graphene in CO_2 Valorization to Methane
Ana Primo[1], Jinbao He[1], Bogdan Jurca[2], Camelia Bala[2], Cristina Bucur[2], Hermenegildo Garcia[1] and Vasile Parvulescu[2], *(1)Universitat Politécnica de Valencia, Spain, (2)University of Bucharest, Romania*.

CO_2 Hydrogenation on Mesoporous Bimetallic Spinel Oxides Having Strong Basic Sites
Yongseok Kim, Seungdon Kwon, Yohan Song and Kyungsu Na, *Chonnam National University, Korea, Republic of (South)*.

Conversion of Monosaccharides to Valuable Chemicals over Heterogeneous Carbon Catalysts
Annu Rusanen[1], Riikka Kupila[2], Katja Lappalainen[1,2], Johanna Kärkkäinen[1] and Ulla Lassi[1,2], *(1)University of Oulu, Finland, (2)University of Jyväskylä, Kokkola University Consortium Chydenius, Finland*.

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Preparation of MOF-74 Derived Solid Base Catalysts Via Nanocasting for the Hydrolysis of β-Lactam Antibiotics
Jihai Tang, *Nanjing Tech University, China*.

Promoting Effect of Cu on a Ag-Loaded CeO_2 Catalyst for Soot Oxidation
JaeHwan Lee and Kwan-Young Lee, *Korea University, Korea, Republic of (South)*.

Active Site Titration of Boron Nitride Used As Catalyst for the Oxidative Dehydrogenation of Propane
Patrick Schmatz, Lars Stoltenberg, Alfons Drochner and Bastian J. M. Etzold, *Technische Universität Darmstadt, Germany*.

Silver-Mediated Photoelectrocatalytic Oxidation of Water for Solar Conversion
Wonyong Choi[1], Tae Hwa Jeon[1], Damián Monllor–Satoca[1] and Hyunwoong Park[2], *(1)Pohang University of Science and Technology, Korea, Republic of (South), (2)Kyungpook National University, Korea, Republic of (South)*.

Leveraging Polymer Overcoatings to Tune Selectivity of Metal Supported Catalysts for Liquid-Phase Hydrogenation: Mass Transport and Macro-Kinetics Studies
Maria Enes da Silva and Jimmy Faria, *University of Twente, Netherlands*.

A Multi-Component Spinel Oxide As a Three-Way Catalyst
Taiki Hirakawa[1], Yushi Shimokawa[1], Wakana Tokuzumi[1], Tetsuya Sato[1], Masayuki Tsushida[1], Hiroshi Yoshida[1,2], Satoshi Hinokuma[1,2], Junya Ohyama[1,2] and Masato Machida[1,2], *(1)Kumamoto University, Japan, (2)Kyoto University, Japan*.

Theory of Parallel Diffusion in Porous Catalytic Systems
Juan Mirena[1], Vladimir V Galvita[1], Brecht Denis[1], Denis Constales[1] and Gregory Yablonsky[2], *(1)Ghent University, Belgium, (2)Washington University in St. Louis, USA*.

Solar-to-Electricity Production By Photoelectrocatalytic Water Oxidation and Oxygen Reduction in Alkaline Solution
Bingqing Zhang, *Huber engineering university, China*.

Environmental-Friendly Propylene Epoxidation Catalyzed By Hollow Titanium Silicate Zeolite: From Catalyst Design to Industrial Demonstration
Changjiu Xia, *Research Institute of Petroleum Processing, SINOPEC, Beijing, 100083(P. R. China), China*.

Hydrogen Plasma Assisted Preparation of Mo_2C and the Application in Hydrodeoxygenation of Phenolic Compounds
Zihan Yu, Zhiquan Yu, Zhichao Sun and Yao Wang, *Dalian University of Technology, China*.

Total Oxidation of Toluene over Silicalite-Covered Ceramic Monoliths Prepared Using 3D Printing after Modification with Transition Metal Oxides
Anna Rokicinska and Piotr Kustrowski, *Jagiellonian University, Poland*.

H_2 Production By Medium Temperature Shift Reaction Coupled with H_2 Pressure Swing Adsorption Process
Cheonwoo Jeong[1], Joonwoo Kim[1], Jinsung Kim[2] and Young-Woong Suh[2], *(1)Research Institute of Industrial Science & Technology, Korea, Republic of (South), (2)Hanyang University, Korea, Republic of (South)*.

The Effect of Pt Loading in the $NiPt/Ce_{0.8}Ti_{0.2}O_{2-\delta}$ on the Carbon Pathways of Dry Reforming of Methane Studied By Transient Techniques
Michalis Vasiliades and Angelos Efstathiou, *University of Cyprus, Cyprus*.

Chemical State Conversion of Silica-Supported Ni Catalyst Under Catalytic Reaction Conditions
Yusaku Yamamoto, Misaki Katayama and Yasuhiro Inada, *Ritsumeikan University, Japan*.

Production of Biosourced α-Olefinic Compounds through an Autothermal "Millisecond" Cracking Process
Hugo Cruchade, Romain Beauchet, Yannick Pouilloux and Ludovic Pinard, *IC2MP, Institute of Chemistry of Poitiers: Materials and Natural Resources/University of Poitiers, France*.

Trace of Oxygen Stabilizes Supported Palladium Catalyst for Formic Acid Dehydrogenation
Pengyu Xu and Leon Lefferts, *University of Twente, Netherlands*.

Solar Energy-Driven Lignin-First Approach Catalyzed By CdS Quantum Dots
Xuejiao Wu, Shunji Xie, Qinghong Zhang and Ye Wang, *Xiamen University, China*.

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Incorporation of Metal Clusters into 3D Graphene-like Zeolite Templated Carbon As Active Sites for Hydrogenation Reactions
Jana Pastvova[1], Vasile Parvulescu[2], Jiri Rathousky[1], Galina Sadovska[1] and Petr Sazama[1], *(1)J. Heyrovský Institute of Physical Chemistry of the CAS, Czech Republic, (2)University of Bucharest, Romania*.

Life and Death of Colloidal PdPt/C Nanoparticles in Oxygen Reduction Reaction
Ruoyu Xu and Feng Ryan Wang, *University College London, United Kingdom*.

Charge Transfer: A Critical Aspect in Support Effect of Catalysis
Haotian Yang[1], Alexander Orlov[1], Xiao Tong[2], Jiajie Cen[1], Claron Ridge[3], Kyle Overdeep[3] and C. Micheal Lindsay[3], *(1)Stony Brook University, USA, (2)Brookhaven National Laboratory, USA, (3)US Air Force Research Laboratory, USA*.

Theoretical Insights into the Dehydrocyclization of C6-C8 Hydrocarbons over Promoted Refractory Metal-Oxides
Thomas Chen[1], John Shabaker[2], Eric Doskocil[2], Glenn Sunley[3], Corneliu Buda[2] and Matthew Neurock[1], *(1)University of Minnesota - Twin Cities, USA, (2)BP, USA, (3)BP Chemicals, United Kingdom*.

Residence Time Distribution Studies of a Cohesive FCC Catalyst in Two Pilot-Scale Rotary Calciners
William Borghard[1], Isaiah Chen[1], Sahil Navodia[1], Bereket Yohannes[1], Elaheh Ardalani[1], Lauren Nordeck[2], Brent Machado[2], Benjamin Glasser[1] and Alberto Cuitino[1], *(1)Rutgers University, USA, (2)W.R. Grace & Co, USA*.

Effect of Ni (Pd,Cu) As Promoter on Stability of Mo_2C/Carbon Catalysts in Hydrodeoxygenation of Dibenzofuran
Shida Liu[1], Haiyan Wang[1], Mark Schmiβ[2], Chang Soo Kim[3] and Kevin Smith[1], *(1)University of British Columbia, Canada, (2)Technical University of Munich, Germany, (3)Korea Institute of Science and Technology, Canada*.

Methyl Formate Hydrogenation to Chain-Lengthened Hydrocarbons over Mn- and Ti-Oxide Promoted Cobalt Catalysts
Andrew Raub[1], Motahare Athariboroujeny[1] and Norbert Kruse[1,2], *(1)Washington State University, USA, (2)Institute for Integrated Catalysis, Pacific Northwest National Laboratory, USA*.

Effects of Support and Oxygen Vacancy on the Energetics of Chemical Looping Combustion (CLC) Reactions of NiO; A DFT Study
Negar Manafi Rasi, Alexander Hyla, Sathish Ponnurangam and Nader Mahinpey, *University of Calgary, Canada*.

Mechanocatalytic Nitrogen Fixation over Titanium
Karoline Hebisch[1], Andrew Tricker[1], Marco Buchmann[2], Eli Stavitski[3], Marcus Rose[2], Andrew J. Medford[1], Marta Hatzell[1] and Carsten Sievers[1], *(1)Georgia Institute of Technology, USA, (2)TU Darmstadt, Germany, (3)Brookhaven National Laboratory, USA*.

Catalytic Isomerization of Glucose-to-Fructose in a Continuous Flow Reactor Using Ca-Al Based Solid Catalyst
Marcelo E. Domine[1], Jaime Mazarío[1] and María Ventura[2], *(1)Instituto de Tecnología Química (ITQ, UPV - CSIC), Spain, (2)Rey Juan Carlos University, Spain*.

Platinum Supported on 3D Nanostructured Carbon Nanofibers for Oxygen Reduction Reaction
Bin Liu, Jiayi Xu, Jun Li and Ayyappan Elangovan, *Kansas State University, USA*.

Greening up the Battle Against Agrochemicals: Fast, Cheap and Versatile?
Yane Santos, Leandro Hostert, Thayna Hack, Maycon Manini, Valmir Silva, Renata Hellinger, Alex Teixeira, Patricia Soares, José Ferreira, Willian Takarada, Jéssica Fonsaca, Aldo Zarbin and Elisa Orth, *Federal University of Paraná, Brazil*.

Olefins By Tandem Ketonization/Aldol Condensation/Deoxygenation of Biomass-Derived Carboxylic Acids
Pablo J. Luggren[1], Liza Dosso[1], Leandro Duarte Almeida[2] and J. Isabel Di Cosimo[1], *(1)Catalysis Science and Engineering Research Group (GICIC) – INCAPE (UNL-CONICET), Santa Fe, Argentina, (2)Universidade Federal de Minas Gerais, Brazil*.

Kinetic Study of C4 Polyol Hydrogenolysis on Rh Promoted Catalyst
Emanuel Virgilio, Cristina L. Padró and Maria E. Sad, *Universidad Nacional del Litoral, Argentina*.

Computational Screening of Metal-Organic Frameworks for Oxidative Alkane Activation
Andrew S. Rosen, Melissa Barona, Sol Ahn, Omar K. Farha, Justin M. Notestein and Randall Q. Snurr, *Northwestern University, USA*.

Core-Shell Ag@TiO_2 Nanoparticles for CO_2 Photoconversion to CH_4
Dachao Hong[1], Lian-Ming Lyu[1], Kenji Koga[2], Yoshihiro Shimoyama[1] and Yoshihiro Kon[1], *(1)National Institute of Advanced Industrial Science and Technology, Japan, (2)Nanomaterials Research Institute, Japan*.

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Using Artificial Neural Networks for the Modeling of the Direct Synthesis of Dimethyl Ether
Nirvana Delgado Otalvaro, *Karlsruhe Institute of Technology, Germany*.

Alkali Effects on the Performance of Pd/NaY Catalyst for the Synthesis of Dimethyl Carbonate from CO and Methyl Nitrite
Zhendong Pan[1], Lin Yang[1,2], Wei Qu[1], Donge Wang[1], Peng Li[1], Lin Wang[1] and Zhijian Tian[1], *(1)Dalian Institute of Chemical Physics, Chinese Academy of Sciences, China, (2)University of Chinese Academy of Sciences, China*.

Rapid Synthesis of Alumina-Rich ZSM-48 Zeolite By Seed-Assisted Route for n-Hexadecane Hydroisomerization
Jipeng Meng and Changhai Liang, *Dalian University of Technology, China*.

Direct Formic Acid Synthesis for CO_2 Hydrogenation Using Pd on Modified Carbon Nitride
EunHyup Kim, *Ulsan National Institute of Science and Technology, Korea, Republic of (South)*.

Ultrafine PdAu Nanoparticles Immobilized on Amine Functionalized Carbon Black Toward Fast Dehydrogenation of Formic Acid at Room Temperature
Tiehong Chen and Luming Wu, *Nankai University, China*.

Effects of Monoethanolamine in Preparation of V/MPTiO_2 Catalysts on NH_3 selective Catalytic Reduction
Do Heui Kim, Se Won Jeon, Inhak Song and Hwangho Lee, *Seoul National University, Korea, Republic of (South)*.

Metal Alloy Catalyst Screening for Selective Hydrogenation of α,β-Unsaturated Aldehyde
Kaining Duanmu[1], Mathilde Luneau[2], David Verbart[2], Robert Madix[2], Cynthia Friend[2] and Philippe Sautet[1], *(1)University of California, Los Angeles, USA, (2)Harvard University, USA*.

Carbamate Synthesis from Nitroarenes over $CuSe_2$ Species Via Reductive Carbonylation
Anh Vy Tran[1,2], Thanh Tung Nguyen[1,2], Hye Jin Lee[1,2], Jayeon Baek[2] and Yong Jin Kim[1,2], *(1)Korea University of Science and Technology (UST), Korea, Republic of (South), (2)Korea Institute of Industrial Technology (KITECH), Korea, Republic of (South)*.

Mass Transfer Advantage of Monolithic Hierarchical Zeolites for Promoting Catalysis Performance in MTH Reaction
Jian Zhou and Jiawei Teng, *SINOPEC, China*.

Ceria-Doped Nanoparticles: Physico-Chemical Properties and Applications in Total Oxidation Catalysis
Melodj Dosa, Marco Piumetti, Samir Bensaid, Nunzio Russo and Debora Fino, *Politecnico di Torino, Italy*.

Production of Organic Acid from Biomass Platform Chemicals
Fang Lu, Rui Lu, Xiaoqin Si and Huifang Jiang, *Dalian Institute of Chemical Physics, China*.

Interfacial Effects of CeO_2 Supported Noble Metal Nanocatalysts in C1 Chemistry
Yawen Zhang, *Peking University, China*.

Well-Dispersed Palladium on Hybrid Carbon for Efficient Propane Dehydrogenation
MI Peng and Ding Ma, *Peking University, China*.

$NiAl_2O_4$ Spinel Supported Pt Catalyst: High Performance and Origin in Aqueous-Phase Reforming of Methanol
Didi Li, Xiaohui Liu, Yong Guo and Yanqin Wang, *East China University of Science and Technology, China*.

Synthesis of Alumina Supported Palladium Catalyst for Direct Synthesis of H_2O_2
Kwan-Young Lee and Seok Ho Lee, *Korea University, Korea, Republic of (South)*.

Photocatalytic Abatement of Ethylene over Titania-Based Systems
Melodj Dosa, Marco Piumetti, Samir Bensaid, Debora Fino and Nunzio Russo, *Politecnico di Torino, Italy*.

Ammonia Decomposition: Exploring a Mechanochemical Approach
Xavier Vendrell, Luis Kitsu, Ilaria Lucentini and Jordi Llorca, *Universitat Politecnica de Catalunya, Spain*.

Thermal Stability of Size-Selected Copper Nanoparticles: Effect of Size, Support and CO_2 Hydrogenation Atmosphere
Mo Li[1,2], Alexandre Borsay[1,2], Mostapha Dakhchoune[1], Kun Zhao[1,2], Wen Luo[2,3] and Andreas Züttel[2,3], *(1)Swiss Federal Institute of Technology Lausanne, EPFL, Switzerland, (2)EMPA, Switzerland, (3)Ecole polytechnique fédérale de Lausanne (EPFL), Switzerland*.

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Characterization of Supported Catalytically Active Liquid Metal Solutions (SCALMS) for High Temperature Applications
Alexander Søgaard[1], Oshin Sebastian[1], Narayanan Raman[1], Moritz Wolf[1], Nicola Taccardi[1], Marco Haumann[1] and Peter Wasserscheid[1,2], *(1)Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany, (2)Forschungszentrum Jülich, Germany*.

Identification of New and High-Activity Titanium Species in Hierarchical Titanium Silicalite-1 By UV Resonance Raman Spectroscopy
Yanli Wang[1], Zhaochi Feng[2] and Xinwen Guo[1], *(1)Dalian University of Technology, China, (2)Dalian Institute of Chemical Physics, China*.

Selective Catalytic Reduction of NO with NH_3 on Cu-SSZ-13: Deciphering the Low and High-Temperature Rate-Limiting Steps By Transient XAS Experiments
Maarten Nachtegaal[1], Adam Clark[2], Oliver Kröcher[3] and Davide Ferri[1], *(1)Paul Scherrer Institut, Switzerland, (2)Paul Scherrer Institute, Switzerland, (3)École Polytechnique Fédérale de Lausanne (EPFL), Switzerland*.

Enhanced Activity of Adjacent Brønsted Sites in Al-Rich H-*BEA Zeolite Compared to Traditional Al- and Si-Rich Zeolites
Jaroslava Moravkova[1], Dalibor Kaucky[1], Monika Marosz[2], Malgorzata Rutkowska[2], Lucjan Chmielarz[2], Jana Pastvova[1], Alena Vondrova[1], Stepan Sklenak[1], Radim Pilar[1] and Petr Sazama[1], *(1)J. Heyrovský Institute of Physical Chemistry of the CAS, Czech Republic, (2)Jagiellonian University, Faculty of Chemistry, Gronostajowa 2, 30-387 Kraków, Poland, Poland*.

3D Printing of Pt-TiO_2 Photocatalysts for Hydrogen Production
Isabel Serrano[1] and Jordi Llorca[2], *(1)Universitat Politècnica de Catalunya, Spain, (2)Universitat Politecnica de Catalunya, Spain*.

Coke Deposition during Dimethyl Ether Carbonylation Reaction over Mordenite Catalysts
Xiaosheng Wang, Ranjia Li and Changchun Yu, *China University of Petroleum, Beijing, China*.

How CO_2 Interacts with Pt-Based Nanoalloys during CO_2-Assisted Propane Dehydrogenation
Nadadur Veeraraghavan Srinath, Hilde Poelman, Lukas Buelens, Valentijn De Coster, Jolien Dendooven, Marie Françoise Reyniers and Vladimir V Galvita, *Ghent University, Belgium*.

The Effects of Water on Pd Speciation and NO_x Storage in Pd Zeolite Based Passive NO_x Adsorbers
Robert Pace, Yaying Ji and Mark Crocker, *University of Kentucky, USA*.

Dihydroxyacetone Upgrading into Lactic Acid over Metal Phosphates in a Continuous Aqueous Phase Project
Giada Innocenti[1,2], Eleni Papadopoulos[1], Andrew J. Medford[1], Giuseppe Fornasari[2], Fabrizio Cavani[2] and Carsten Sievers[1], *(1)Georgia Institute of Technology, USA, (2)Università di Bologna, Italy*.

Chemical Modification of h-BN on the Performance Of Mn/Na_2WO_4/SiO_2-BN Catalysts for the Oxidative Coupling Of Methane
JinHui Tong[1], Qi Zhang[1,2], Lingjun Chou[2,3], Huanling Song[2] and Jian Yang[2], *(1)Northwest Normal University, China, (2)Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, China, (3)Suzhou Research Institute of LICP, Chinese Academy of Sciences, China*.

Renewable H_2 Production from Steam Reforming of Glycerol (SRG) over Encapsulated Ni-Silicalite-1 Zeolite Supported Catalyst.
Ammaru Ismaila, *The University of Manchester, United Kingdom*.

Highly Efficient Pt/Ga Single-Atom Alloy Catalysts Supported on Zeolites for Ethane Dehydrogenation to Ethylene
Lucun Wang, Meng Li, Wei Wu and Dong Ding, *Idaho National Laboratory, USA*.

The Unexpected Role of Carbon in Photocatalytic Nitrogen Fixation over Titania Catalysts
Benjamin Comer, Yu-Hsuan Liu, Marta Hatzell and Andrew J. Medford, *Georgia Institute of Technology, USA*.

Insights into Perovskite Nano-Catalysts As Oxygen Electrodes for the Electrochemical Splitting of Water
Maarten Nachtegaal[1], Emiliana Fabbri[1], Mario Borlaf[2], Ivano Castelli[3], Thomas Graule[2] and Thomas Schmidt[1], *(1)Paul Scherrer Institut, Switzerland, (2)EMPA, Switzerland, (3)Technical University of Denmark, Denmark*.

Elucidating the Reaction Pathways of Methane Pyrolysis in Monovalent, Alkali-Halide Molten Salts
Clarke Palmer[1], Maryam Tarazkar[2], Miles Wolf[1], Ryan Patrick[1], Michael Gordon[1], Horia Metiu[2] and Eric McFarland[1], *(1)University of California, Santa Barbara, USA, (2)University of California Santa Barbara, USA*.

Liquid Phase Profile Reactor for the Epoxidation of Propylene to Propylene Oxide with Hydrogen Peroxide over TS-1 Extrudates
Andres Aquino, Oliver Korup and Raimund Horn, *Hamburg University of Technology, Germany*.

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Investigation of Nickel-Based Methanation Catalysts By *Operando* XAS and Tomography Studies
Sebastian Weber[1], Ken L. Abel[2], Juliane Titus[2], Roger Gläser[2], Ronny T. Zimmermann[3], Kai Sundmacher[3] and Thomas L. Sheppard[1], *(1)Karlsruhe Institute of Technology (KIT), Germany, (2)Universität Leipzig, Germany, (3)Otto-von-Guericke University Magdeburg, Germany*.

Ru^0·Ru^{n+}/Al_2O_3 a Bifunctional Catalyst for Allyl Alcohol Isomerization
Julian Enciso[1], Alfonso Ramirez[1], Lizbeth L. López[2], Carlos Ostos[3], Adriana Echavarria[3], Misael Cordoba[4], Cecilia Lederhos[5] and Cristian Miranda[1], *(1)Universidad del Cauca, Colombia, (2)Universidad Santiago de Cali, Colombia, (3)Universidad de Antioquia, Colombia, (4)INCAPE, Argentina, (5)Instituto de Catálisis y Petroquímica (INCAPE), Argentina*.

Low Temperature Alkylation of Naphthalene with Propylene over Highly Ordered Mesoporous Al-SBA-15
Anish Johns, Yoshihiro Sugi, Venkata Dasireddy, Stalin Joseph and Ajayan Vinu, *Global Innovation Centre for Advanced Nano Materials, Australia*.

Process Optimization Design for Ethanol Conversion into Hydrocarbons Using Response Surface Methodology and Central Composite Design
Donato Alexandre Gomes Aranda, José Faustino Souza de Carvalho Filho, João Almeida, Eduardo Falabella Sousa-Aguiar and Pedro Nothaft Romano, *Universidade Federal do Rio de Janeiro, Brazil*.

Oxygen Uncoupling Properties of Mixed Metal Oxides for High Temperature Chemical Looping Combustion
Ping Wang[1], Bret Howard[1], Nicholas Means[2] and Dushyant Shekhawat[1], *(1)National Energy Technology Laboratory, DOE, USA, (2)Leidos Research Support Team, USA*.

H_2 Production from Methanol Decomposition over Cu-Pt Nanoalloys Supported on Nano-Ceria
Daniel G. Araiza, Antonio Gómez-Cortés and Gabriela Díaz, *Instituto de Física, Universidad Nacional Autónoma de México, Mexico*.

Direct in Situ Monitoring of Nanoalloy Transformation Pathways
Min Tang and Yong Wang, *Zhejiang University, China*.

Unified Computational Approach for Identification of Promiscuous Enzyme Activity
Nihan Celebi-Olcum, *Yeditepe University, Turkey*.

Increasing H_2O_2 Utilization to Promote Low Temperature Selective Oxidation of Methane to Methanol with Au-Pd Colloids
Yang Yan and Jie Fan, *Zhejiang University, China*.

Artificial Inflation of Apparent Photocatalytic Activity of Heterojunction Systems
Larissa Kunz[1], Benjamin Diroll[2], Cody Wrasman[1], Andrew Riscoe[1], Arun Majumdar[1] and Matteo Cargnello[1], *(1)Stanford University, USA, (2)Argonne National Laboratory, USA*.

Study on the Catalytic Reaction Behavior of Ethane with CO_2 over Ni-Based Catalyst
Zhicheng Liu, *Shanghai Research Institute of Petrochemical Technology,Sinopec, China*.

Enhancing the Activity of TiO_2-Supported Co Catalysts for Fischer-Tropsch Synthesis Via Reduction-Oxidation-Reduction (ROR) Treatments
Francine Bertella[1,2], Patricia Concepcion[1], Christian W. Lopes[1,2] and Agustin Martinez[1], *(1)Instituto de Tecnologia Quimica, UPV-CSIC, Spain, (2)Institute of Chemistry, UFRGS, Brazil*.

Transition Metal Oxides/Sulfides for Alkane Dehydrogenation
Lived Lemus-Yegres, David McCarthy and Poul Erik Højlund Nielsen, *Haldor Topsøe A/S, Denmark*.

Carbon Tolerant Rh-Substituted Pyrochlore Catalysts for Low S/C Methane Steam Reforming: Effect of W or Nb
Daniel J. Haynes[1], Dushyant Shekhawat[2], Yan Zhou[3] and James J. Spivey[4], *(1)National Energy Technology Laboratory, USA, (2)National Energy Technology Laboratory, DOE, USA, (3)Leidos Research Support Team, USA, (4)Louisiana State University, USA*.

Synthesis-Controlled Epitaxial Growth of Calcium Vanadate over V-Hydroxyapatites As the Origin of Synergistic Effects in the Catalytic Oxidative Dehydrogenation of Propane
Guylene Costentin[1], Sarah Petit[1], Cyril Thomas[1], Stanislaw Dzwigaj[1], Yannick Millot[1], Frederic Averseng[1], Jean-Marc Krafft[1], Dalil Brouri[1] and Christel Laberty-Robert[2], *(1)Sorbonne Université - CNRS, France, (2)Laboratoire de Chimie de la Matière Condensée de Paris, France*.

Tuning Paired Al Density in CHA Via a Dual Template Approach
Eduard Kunkes and Ahmad Moini, *BASF Corporation, USA*.

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ALD over-Coating Zn@Cu/SiO_2 and Cu@Zn/SiO_2 to Reveal Mechanism of CO_2 Hydrogenation for CH_3OH Formation
Jinglin Gao[1], Hui Wang[1], Ajay Dalai[1] and Yongfeng Hu[2], *(1)University of Saskatchewan, Canada, (2)Canadian Light Source, Canada*.

Multivariable Approach to Quantitative Analysis of Structure-Activity Relationship in Photocatalytic Dehydrogenative Homo-Coupling of Hydrocarbon
Shimpei Naniwa, Akira Yamamoto and Hisao Yoshida, *Kyoto University, Japan*.

Ga-Ion Doped ZrO_2 Catalysts Characterized By XRD, XAFS and C2-C4 Alcohol Conversion
Takashi Yamamoto, Akihito Kurimoto, Riona Sato and Shoki Katada, *Tokushima University, Japan*.

Electrocatalytic Hydrogenation of Model Bio-Oil Compounds
Nirala Singh[1], James Akinola[1], Isaiah Barth[1], Charles T. Campbell[2], Johannes A. Lercher[3,4] and Bryan Goldsmith[1], *(1)University of Michigan, Ann Arbor, USA, (2)University of Washington, USA, (3)Pacific Northwest National Laboratory, USA, (4)Technical University of Munich, Germany*.

Silica Supported Nickel Phosphide Catalyst for Nonoxidative Coupling of Methane to Higher Hydrocarbons
Arnoldus Lambertus Dipu, Yuta Nishikawa, Shoji Iguchi and Ichiro Yamanaka, *Tokyo Institute of Technology, Japan*.

Relationship between Titanium Species and Catalytic Oxidation Performance in Ti-MWW Zeolite
Shaoqing Jin and Weimin Yang, *Sinopec Shanghai Research Institute of Petrochemical Technology, China*.

The Potential of Time-Resolved Operando UV-Vis Spectroscopy for Analysing Coke Formation and Removal in Propane Dehydrogenation
Yaoyuan Zhang[1,2], Tatiana Otroshchenko[1], Anna Perechodjuk[1], Shanlei Han[1,2], Uwe Rodemerck[1], David Linke[3], Guiyuan Jiang[2] and Evgenii V. Kondratenko[3], *(1)Leibniz-Institut für Katalyse e. V., Germany, (2)China University of Petroleum Beijing, China, (3)Leibniz-Institut für Katalyse e.V., Germany*.

Stable Ni-CeO_2-Al_2O_3 Catalysts Prepared By EISA Method for Dry Reforming of Biogas
André Marinho[1,2,3], Florence Epron[2], Fábio Noronha[1], Fabio Toniolo[3] and Nicolas Bion[2], *(1)National Institute of Technology, Brazil, (2)Institut de Chimie des Milieux et Matériaux de Poitiers (IC2MP), CNRS, Université de Poitiers, France, (3)Federal University of Rio de Janeiro, Brazil*.

Precisely Tailoring Band Structure of 2D MoS_2 by Defect Engineering
Yi-Ming Zhao[1], Qing-Bo Yan[1] and James Lewis[2], *(1)University of Chinese Academy of Science, China, (2)Institute of Coal Chemistry, Chinese Academy of Sciences, China*.

Influence of Crystallites Morphology on the Acidity and Pt Stability of γ-Alumina
Yang Yanpeng, Ma Aizeng, Wang Chunming, Nie Ji, Li Mingzhe and Da Zhijian, *SINOPEC Research institute of petroleum processing, China*.

Facile Synthesis of CdS/TiO_2 Catalyst for Photocatalytic Reduction of CO_2 and CH_4 Yield Intensification Under Biomethanation Processes
Shivaraju Harikaranahalli Puttaiah[1], Yashas S R[1], Akarsha K[1] and David Jenkins[2], *(1)JSS Academy of Higher Education & Research, India, (2)2University of Plymouth, United Kingdom*.

Influence of the Addition of Promoters on 10Ni10Na_2CO_3/Al_2O_3 for the CO_2 Storage and in Situ Hydrogenation to CH_4
Alejandro Bermejo López, Beñat Pereda, José Antonio González Velasco and Juan Ramón González, *University of the Basque Country, Spain*.

Synthesis of Biologically Active Monoterpene Amines Via One-Pot Alcohol Amination over Gold Catalysts
Yuliya S. Demidova[1,2], Irina L. Simakova[1,2], Evgeny V. Suslov[3], Evgeny S. Mozhajcev[3], Konstantin P. Volcho[2,3], Nariman F. Salakhutdinov[2,3], Andrey V. Simakov[4] and Dmitry Murzin[5], *(1)Boreskov Institute of Catalysis, Russian Federation, (2)Novosibirsk State University, Russian Federation, (3)Novosibirsk Institute of Organic Chemistry, Russian Federation, (4)Universidad Nacional Autónoma de México, Centro de Nanociencias y Nanotecnología, Mexico, (5)Åbo Akademi University, Process Chemistry Centre, Turku/Åbo, Finland*.

Exsolved Ni Catalyst on Perovskite Oxide for Enhanced Water Gas Shift Reaction
Rui Huang and Jeong Woo Han, *Pohang University of Science and Technology (POSTECH), Korea, Republic of (South)*.

Morphology Control of CuO Nanoparticles Synthesized By Using Various Cu Precursors and Precipitants
Seo-Hyun Baek, Hyun Mo Koo and Chae-Ho Shin, *Chungbuk National University, Korea, Republic of (South)*.

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Transformation of Nitrogen-Containing Monoterpenoids into Amines or Carbonyl Compounds over Au and Pt Catalysts
Yuliya S. Demidova[1,2], Evgeny V. Suslov[3], Evgeny S. Mozhajcev[3], Aldar A. Munkuev[3], Konstantin P. Volcho[1,3], Nariman F. Salakhutdinov[1,3], Andrey V. Simakov[4], Irina L. Simakova[1,2] and Dmitry Murzin[5], *(1)Novosibirsk State University, Russian Federation, (2)Boreskov Institute of Catalysis, Russian Federation, (3)Novosibirsk Institute of Organic Chemistry, Russian Federation, (4)Universidad Nacional Autónoma de México, Centro de Nanociencias y Nanotecnología, Mexico, (5)Åbo Akademi University, Process Chemistry Centre, Turku/Åbo, Finland*.

Effect of Close Protons in ZSM-5 on Catalytic Performance in Propene Oligomerization and Aromatization
Edyta Tabor, Milan Bernauer, Blanka Wichterlova and Jiri Dedecek, *J. Heyrovský Institute of Physical Chemistry of the CAS, Czech Republic*.

Plasmonic Ag@ZnO Nanoparticles for Enhanced Visible Light Photodegradation of Methyl Orange Under Visible Light Irradiation
Diogo Pellosi, Danielle Mota, Angelica Rosolino and Pedro Ono, *Federal University of São Paulo, Brazil*.

Activated Carbon Supported Ni-Based Catalysts for CO_2 Methanation – Tailoring the Surface Properties to Achieve Efficient Catalysts
Liliana P. L. Gonçalves[1,2], Juliana P. S. Sousa[1], O. Salomé G. P. Soares[2], Yury V. Kolen'ko[1] and M. Fernando R. Pereira[2], *(1)International Iberian Nanotechnology Laboratory, Portugal, (2)Faculty of Engineering of University of Porto, Portugal*.

Microwave Catalysis for Chemical Reactions
Dushyant Shekhawat[1], Victor Abdelsayed[2] and Christina Wildfire[2], *(1)National Energy Technology Laboratory, DOE, USA, (2)National Energy Technology Laboratory, USA*.

Tuning Nb_2O_5 Water Tolerant Lewis Acid Sites for Triose Conversion into Lactic Acid
Kryslaine M. A. Santos, Elise M. Albuquerque, Tiago L. Coelho and Marco A. Fraga, *Instituto Nacional de Tecnologia, Brazil*.

Solvent-Mediated Stabilization of Surface Intermediates during Alkene Epoxidation in Ti-Substituted Zeolites
Daniel Bregante, Jun Zhi Tan, Matthew Chan, Diwakar Shukla and David Flaherty, *University of Illinois at Urbana-Champaign, USA*.

Dual-Beam Fourier Transform Infrared Spectrometer: Applications and Potentials in Heterogeneous Catalysis
Jiaxu Liu[1], Hongchen Guo[1] and Qin Xin[2], *(1)Dalian University of Technology, China, (2)Dalian Institute of Chemical Physics, China*.

Kinetics and Predictive Design of Biomass Conversions in Lewis Acidic Zeolites from *Ab-Initio* simulations and Microkinetic Modeling
Brandon Bukowski[1,2] and Jeffrey Greeley[2], *(1)Northwestern University, USA, (2)Purdue University, USA*.

Partial Catalytic Methane Conversion to Value-Added Products By Nitrous Oxide over Fe-FER Catalysts Prepared By Different Methods
Guangyu Zhao[1], Eric Kennedy[1] and Michael Stockenhuber[2], *(1)The university of Newcastle, Australia, (2)University of Newcastle, Australia*.

Defective $Mn_xZr_{1-X}O_2$ Solid Solution for the Catalytic Oxidation of Toluene: Insights into the Oxygen Vacancy Contribution
Xiaolin Yu, *Institute of Chemistry Chinese Academic of Sciences, China*.

Hydrolysis of Amides to Carboxylic Acids Catalyzed By Nb_2O_5
Abeda Sultana Touchy[1], Md. Nurnobi Rashed[1], S. M. A. Hakim Siddiki[1], Takashi Toyao[1,2] and Ken-ichi Shimizu[1,2,3], *(1)Institute for Catalysis, Hokkaido University, Japan, (2)Kyoto University, Japan, (3)Hokkaido University, Japan*.

Heterogeneous Methylated Gallosilicate Materials for Acetalization of Glycerol to Solketal
Hussein Hussein[1], Michel Devillers[1] and Carmela Aprile[2], *(1)Université Catholique de Louvain, Belgium, (2)Université de Namur, Belgium*.

A Novel Reactor for Temperature, Concentration and Spectroscopic Profile Measurements of NH_3 Oxidation Under Industrial Conditions
Jan Pottbacker[1], Oliver Korup[1], Maximilian Warner[2] and Raimund Horn[1], *(1)Hamburg University of Technology, Germany, (2)Yara International, Norway*.

Sonication Activation during Synthesis of ZrO_2-Supported Au-Pt Catalysts on Aerobic Oxidation of Glucose to Glucaric Acid
Natalia Potrzebowska[1], Elie Derrien[2], Philippe Marion[2], Noémie Perret[1], Gregory Chatel[3], Luis Cardenas[1], Catherine Pinel[1] and Michèle Besson[1], *(1)CNRS / Université Claude Bernard Lyon1 / Université de LYON, France, (2)SOLVAY, France, (3)Université Savoie Mont-Blanc, France*.

Highly Selective Bifunctional Ni Zeo-Type Catalysts for the Production of Green Diesel from Algal Oil
Siglinda Perathoner[1], Georgia Papanikolaou;[1], Paola Lanzafame[1], Gianfranco Giorgianni[1,2], Salvatore Abate[1] and Gabriele Centi[3], *(1)University of Messina, Italy, (2)University of Calabria, Italy, (3)University of Messina and ERIC aisbl, Italy*.

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Understanding the Interaction between Water and Acid Sites on Zeolites Using Probe Molecules
Mariana V. Rodrigues, Erica C. O. Munsignatti and Heloise O. Pastore, *University of Campinas, Brazil*.

DFT Calculations on Brønsted Acidity in Al-SBA-15
Paulina Rocha-Sánchez and María-Guadalupe Cárdenas-Galindo, *Universidad Autónoma de San Luis Potosí, Mexico*.

The Role of Alkali Cation during the Electroreduction of CO_2 in Aqueous Media
Anne Co and Fen Zhang, *The Ohio State University, USA*.

Monoliths Washcoated with AuCu Catalyst Supported on Nanoparticles of CeO_2 As Promising System for CO Removal from a Syngas Stream
Bernay Cifuentes[1,2], Felipe Bustamante[1], Lluís Soler[3], Jarosław Serafin[3], Jordi Llorca[3] and Martha Cobo[2], *(1)Universidad de Antioquia, Colombia, (2)Universidad de La Sabana, Colombia, (3)Universitat Politecnica de Catalunya, Spain*.

Sodium Tungstate-Promoted Perovskite Oxides As Effective Redox Catalysts for Redox Oxidative Cracking of Naphtha
Ryan Dudek[1], Fang Hao[1,2], Yunfei Gao[1], Xin Tian[3], Luke Neal[1] and Fanxing Li[1], *(1)North Carolina State University, USA, (2)National & Local United Engineering Research Centre for Chemical Process Simulation and Intensification, College of Chemical Engineering, Xiangtan University, China, (3)Huazhong University of Science & Technology, China*.

Non-Faradaic Electrochemical Promotion of Gas Phase Solid Acid-Catalyzed Reactions
Mark Sullivan[1], Alexander Khechfe[1], Constantinos Vayenas[2] and Yuriy Roman[1], *(1)Massachusetts Institute of Technology, USA, (2)University of Patras, Greece*.

The Synergetic Mechanism of NO_x Removal and Chlorobenzene Degradation in Municipal Solid Waste Incinerators
Junhua Li, *Tsinghua University, China*.

Following the Structural Evolution of a Multicomponent Selective Propylene Oxidation Catalyst By Complementary *Operando* Techniques
Matthias Stehle, Thomas L. Sheppard and Jan-Dierk Grunwaldt, *Karlsruhe Institute of Technology (KIT), Germany*.

An Experimental Investigation of the Fischer-Tropsch Synthesis over a 3D Printed Metallic Structured Support: An Effective Solution for Compact Tubular Packed-Bed Reactors
Laura Fratalocchi, Gianpiero Groppi, Carlo Giorgio Visconti, Luca Lietti and Enrico Tronconi, *Politecnico di Milano, Italy*.

Gliding Arc Plasma: In Situ/Post-Discharge Reactions for Mn Oxides Nanomaterials Synthesis and Plasmacatalytic Properties
Franck William Boyom Tatchemo[1,2], Samuel Laminsi[2] and Eric Gaigneaux[1], *(1)University Catholic of Louvain, Belgium, (2)University of Yaounde 1, Cameroon*.

Hydrogenolysis of Biogenic Feedstocks –Catalyst Development and Mechanistic Insights
Anna Katharina Beine, Regina Palkovits, Peter Hausoul and Xinde Wang, *RWTH Aachen University, Germany*.

Dehydrogenative Conversion of Methane on Pd-Si Alloy Catalysts
Hitoshi Ogihara, Hideki Kurokawa and Natsuko Imai, *Saitama University, Japan*.

Optimization of the Oxygen Evolution Reaction – Electrode Development and Kinetic Investigations
Anna Katharina Beine, Cornelia Broicher, Feng Zeng, Leila Negahdar, Stefan Palkovits and Regina Palkovits, *RWTH Aachen University, Germany*.

Ethane ODH on Mixed Metal Oxides: On the Role of Te and Nb in MoVTeNbO Mixes Oxides
Jose M. Lopez Nieto[1], Agustin De ARRIBA[1], Benjamin Solsona[2] and Ester Garcia-González[3], *(1)CSIC, Spain, (2)Universitat de Valencia, Spain, (3)Universidad Complutense, Spain*.

Fischer-Tropsch Synthesis: Synergism between Cobalt and Nickel
Michela Martinelli[1], Sai Charan Karuturi[2], Richard Garcia[2], Caleb D. Watson[2], Donald C. Cronauer[3], A. Jeremy Kropf[3], Christopher L. Marshall[3] and Gary Jacobs[2], *(1)University of Kentucky, USA, (2)UTSA, USA, (3)Argonne National Laboratory, USA*.

Towards the Industrial Application of the Catalytic Ethylene Production
Jaime Sanchez Valente, Roberto Quintana-Solorzano, Andrea Rodríguez-Hernández, María de L. Guzmán-Castillo and Héctor Armendáriz-Herrera, *Instituto Mexicano del Petróleo, Mexico*.

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Towards a System for in Situ Illumination of Photocatalysts in Aqueous Environments in Transmission Electron Microscopy
Barnaby Levin, Diane Haiber, Qianlang Liu and Peter Crozier, *Arizona State University, USA*.

Preparation and Characterization of Cu@nZVI-Based Catalysts for the Degradation of Nitrophenol
You-Sheng Lin, Zong-Wei Chen, I-Fan Lai and Kuen-Song Lin, *Yuan Ze University, Taiwan*.

Towards the Efficient and Selective Production of Vinyl Furans
Sebastian Prodinger, Margot F. K. Verstreken and Raul F. Lobo, *University of Delaware, USA*.

Continuous Flow Oxidation of Glycerol into Carboxylic Acids over Supported Nano-Sized Gold Catalysts
Naoki Mimura, Natsumi Muramatsu, Norihito Hiyoshi, Osamu Sato and Aritomo Yamaguchi, *National Institute of Advanced Industrial Science and Technology (AIST), Japan*.

Chitosan - Derived Transition Metal Supported on Nitrogen Doped Carbon Composites: Efficient and Versatile Catalysts for the Selective Hydrogenation of Various N-Heteroarenes
Nisrine Hammi[1,2], Sébastien Royer[1], Christophe Michon[1] and Abdelkarim ElKadib[2], *(1)Univ. Lille, CNRS, ENSCL, Centrale Lille, Univ. Artois, UMR 8181 - UCCS - Unité de Catalyse et Chimie du Solide, F-59000 Lille, France, France, (2)Euro-Med University of Fes (UEMF), Route de Meknes, Rond-point de Bensouda, 30070, Fès, Morocco, Morocco*.

Kinetic Modeling of Oxidative Coupling of Methane for Various Promoters
Myung-June Park[1], Yesol Woo[1], Lahee Park[2] and Jeong-Myeong Ha[2], *(1)Ajou University, Korea, Republic of (South), (2)Korea Institute of Science and Technology, Korea, Republic of (South)*.

Enhancing Productivity and Selectivity of La^{3+} Exchanged X Zeolites in Isobutane/2-Butene Alkylation By Increasing Catalyst Pellet Size
Verena Höpfl[1], Teresa Schachtl[1], Yue Liu[1] and Johannes Lercher[1,2], *(1)Technical University of Munich, Germany, (2)Pacific Northwest National Laboratory, USA*.

Crystallite Size Effect in Zeolite Catalyzed Isobutane/Butene Alkylation
Teresa Schachtl[1], Verena Höpfl[1], Yue Liu[1] and Johannes Lercher[1,2], *(1)Technical University of Munich, Germany, (2)Pacific Northwest National Laboratory, USA*.

Production of Bio-Based 2,5-Bis(aminomethyl) Furan
Haifeng Qi[1,2], Fei Liu[1], Aiqin Wang[1] and Tao Zhang[1], *(1)Dalian Institute of Chemical Physics, Chinese Academy of Sciences, China, (2)University of Chinese Academy of Sciences, China*.

Polymeric Vanadia Determine the Low-Temperature Activity of V-Based Catalysts for SCR of NO_x with NH_3
Guangzhi He and Hong He, *Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences, China*.

Novel NIR-Based Photocatalysts for Turbid Wastewater Treatment
David Hu[1], Ting Cheng[2], Zhenpeng Cui[3], Fiorenzo Vetrone[2], Christophe Colbeau-Justin[3], Guylène Costentin[1], Souhir Boujday[1] and Juliette Blanchard[1], *(1)Laboratoire de Réactivité de Surface (LRS), CNRS-Sorbonne Université, France, (2)Institut National de la Recherche Scientifique (INRS), Université du Québec, Canada, (3)Laboratoire de Chimie Physique (LCP), Université Paris-Sud, France*.

Alginate-Derived Fe@C-Catalysts for Fischer-Tropsch Synthesis
Joakim Tafjord[1], Samuel K. Regli[2], Magnus Rønning[2], Rune Myrstad[3], Erling Rytter[1], Anders Holmen[1] and Jia Yang[1], *(1)Norwegian University of Science and Technology, Norway, (2)Norwegian University of Science and Technology (NTNU), Norway, (3)SINTEF Industry, Norway*.

Effect of Platinum Size of Pt/γ-Al_2O_3 Catalysts on Propane Dehydrogenation
Alexandre Van Assche, Anthony Le Valant, Catherine Especel and Florence Epron, *Institut de Chimie des Milieux et Matériaux de Poitiers (IC2MP), CNRS, Université de Poitiers, France*.

Mesostructured Pt Catalysts for Efficient Oxygen Reduction
Teng Chen, Yida Xu and Weiping Ding, *Nanjing University, China*.

Crystal-Facet Effect of γ-Al_2O_3: Catalytic Semihydrogenation of Acetylene over Supported CrO_x Catalysts
Weiping Ding and Yibo Wang, *Nanjing University, China*.

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Catalytic Performance of Spinel-Type Oxides for Soot Oxidation
Lioudmila Nossova, *Natural Resources Canada, Canada*.

Hydroxyapatite-Doping on Na-W-Mn/SiO_2 Catalysts for Oxidative Coupling of Methane: Enhanced Surface Lattice Oxygen Species for Ethylene Selectivity
ByungJin Lee, Young Gul Hur and Kwan-Young Lee, *Korea University, Korea, Republic of (South)*.

Quantitative Analysis of Surface Sites: Calorimetry Beyond Adsorption
Sabine Wrabetz, Andrey Tarasov, Elias Frei, Annette Trunschke and Robert Schlögl, *Fritz-Haber-Institut der Max-Planck-Gesellschaft, Germany*.

Intensification of CO_2 Temperature Swing Adsorption By the Use of Conductive Packed Foams
Stefano Edoardo Zanco[1], Matteo Ambrosetti[2], Enrico Tronconi[2], Gianpiero Groppi[2] and Marco Mazzotti[1], *(1)ETH, Switzerland, (2)Politecnico di Milano, Italy*.

Solvents Form Surface Redox Mediators That Facilitate Oxygen Reduction on Pd Nanoparticles
Jason Adams[1], Ashwin Chemburkar[2], Pranjali Priyadarshini[1], Yubing Lu[3], Tomas Ricciardulli[1], Ayman M. Karim[3], Matthew Neurock[4] and David Flaherty[1], *(1)University of Illinois at Urbana-Champaign, USA, (2)University of Minnesota - Twin Cities, USA, (3)Virginia Polytechnic Institute and State University, USA, (4)University of Minnesota, USA*.

Metal Carbide Chemical Looping Reforming for Low-Carbon Hydrogen and Syngas Production
Luis D. Virla, Camilla Fernandes de Oliveira, Negar Manafi and Nader Mahinpey, *University of Calgary, Canada*.

A General Method for Synthesis of Boron Catalysts Towards Enhanced Oxidative Dehydrogenation of Propane
Huan Yan[1], Selim Alayoglu[1], Weiqiang Wu[1], Justin M. Notestein[2] and Peter C. Stair[1,3], *(1)Northwestern University, USA, (2)University of California Berkeley, USA, (3)Argonne National Laboratory, USA*.

Ni/$MgAl_2O_4$ Catalyst for Dry Reform of Methane: Effect of the Combustion Route in the Catalyst Properties
Dulce Melo[1], Marcel Galdino[1,2,3], Rodolfo Medeiros[1], Heloisa Macedo[3], Renata Braga[2] and Fernando Maziviero[1], *(1)Federal University of Rio Grande do Norte, Brazil, (2)UFRN, Brazil, (3)Laboratório de Tecnologia ambiental - LabTam/UFRN, Brazil*.

Carbocation-Mediated Cyclization of Conjugated Trienes in Acid Zeolites: A DFT Investigation
Jason Lee[1], Stavros Caratzoulas[2] and Raul F. Lobo[1], *(1)University of Delaware, USA, (2)Catalysis Center for Energy Innovation (CCEI), University of Delaware, USA*.

The Design of Advanced Nanocatalysts for Electrochemical Reduction of Carbon Dioxide
Licheng Liu, *Qingdao Institute Of Bioenergy And Bioprocess Technology, Chinese Academy Of Sciences, China*.

Photocatalytic Dehydrogenation Coupling of Ethanol to Acetaldol through the Synergy Effects of Base
Xin Shu, *Beijing University of Chemical Technology, China*.

Fixation of Carbon Dioxide Using Metal Oxide Clusters As Base Catalyst
Jun Hirayama[1,2], Yu Fujiki[2], Vorakit Chudatemiya[2], Kanako Shibata[2], Mio Tsukada[2] and Seiji Yamazoe[1,2,3], *(1)Kyoto University, Japan, (2)Tokyo Metropolitan University, Japan, (3)CREST, Japan*.

Highly Efficient Catalysts for Purification of Exhaust Gas Containing Multiple Pollutants
Du Chenhao, *shanghai research institute of petrochemical technology, China*.

Continuous Condensed-Phase n-Butanol Production from Ethanol Using Bimetallic Nickel Catalysts
Iman Nezam[1] and Dennis Miller[2], *(1)Georgia Institute of Technology, USA, (2)Michigan State University, USA*.

Strategies for Improving the Photocatalytic Water Oxidation Performance of Bi_2MoO_6-Based Semiconductor
Wu Xuelian, *Shenzhen University, China*.

The Inclusion of Anharmonic Effects in Adsorbate Thermochemistry
Katrin Blondal and Franklin Goldsmith, *Brown University, USA*.

H_2/Syngas Generation from C1 Chemistry Compounds
Sukhe Badmaev, Vladimir Belyaev, Aleksey Pechenkin and Vladimir Sobyanin, *Novosibirsk State University, Russian Federation*.

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Tackling the Activity and Selectivity Challenges of N_2 Electroreduction Via Atomically Dispersed Bi-Atom Catalysts
Xiangyu Guo and Shiping Huang, *Beijing University of Chemical Technology, China*.

N-Alkylation of Amines with Alcohols Using Pd/SiO_2 Catalyst
Ahmad Alshammari[1], Rashid Altamimi[1] and Rajenahally Jagadeesh[2], *(1)King Abdulaziz City for Science and Technology, Saudi Arabia, (2)Leibniz Institute for Catalysis, Germany*.

Continuous Co-Electroless Deposition, an Improved Bimetallic Synthesis Method
Gregory Tate[1], Bahareh Alsadat Tavakoli Mehrabadi[2], Wen Xiong[1], Fahim B.A. Rahman[1], Benjamin Meekins[1], Weijian Diao[1], John R. Regalbuto[1] and John R. Monnier[1], *(1)University of South Carolina, USA, (2)Carnegie Mellon University, USA*.

Copper -Folded SCPNs As Metalloenzyme for Asymmetric Henry Addition Reaction in Water
Zhang Yaoyao, *Hubei Engineering University, China*.

N-Doped Hierarchical Porous Metal-Free Catalysts Derived from Covalent Triazine Frameworks for Efficient Oxygen Reduction Reaction
Yaqi Cao, *Tianjin University, China*.

Transient Tests to Assess the Cu Speciation in Cu-CHA Catalysts: Investigating Hydrothermal Aging Effects
Umberto Iacobone[1], Roberta Villamaina[1], Isabella Nova[1], Enrico Tronconi[1], Yadan Tang[2], Ashok Kumar[2] and Aleksey Yezerets[2], *(1)Politecnico di Milano, Italy, (2)Cummins Inc., USA*.

Highly Selective Reduction of *α,β*-Unsaturated Aldehydes and Ketones Under Ambient Conditions Using Tetraalkylphosphonium Ionic Liquids
Haresh Manyar, Peter Nockemann and Johan Jacquemin, *Queen's University Belfast, United Kingdom*.

Nitrogen Based Acidic Ionic Liquids for the Esterification of Glycerol with Acetic Acid
Haresh Manyar, John Keogh and Manish Tiwari, *Queen's University Belfast, United Kingdom*.

Densely-Buffered Electrolyte at Near-Neutral pH for Stable Operation of Water Electrolysis at Elevated Temperatures
Takahiro Naito, Tatsuya Shinagawa and Kazuhiro Takanabe, *The University of Tokyo, Japan*.

Dynamic Observation of Molecular Cation Vibrations on Zeolites By Far-IR Transmission Method
Ryota Osuga, Toshiyuki Yokoi and Junko N. Kondo, *Tokyo Institute of Technology, Japan*.

Microwave Catalysis Under Microwave Irradiation and Study on the Microwave Catalytic Reaction Technology
Jicheng Zhou, *Xiangtan University, China*.

How CO_2 Chemisorption States Affect Hydrogenation Activity
Bin Yang and Limin Guo, *Huazhong University of Science and Technology, China*.

Synthesis and Application of Biomass-Derived Ni Alloy Catalysts
Heeyeon Kim[1] and Alex Robertson[2], *(1)Korea Institute of Energy Research, Korea, Republic of (South), (2)Oxford university, United Kingdom*.

Ultrasound-Assisted Synthesis of Zeolite Mordenite
Agnieszka Kornas, Joanna Olszowka, Edyta Tabor, Jiri Rathousky, Libor Brabec, Jiri Dedecek and Veronika Pashkova, *J. Heyrovský Institute of Physical Chemistry of the CAS, Czech Republic*.

Hierarchical Branched Cobalt Nanostructures Induced By Cobalt-Hydrogen Interactions with High CO Hydrogenation Activity
Qinwei Zhang[1], Biaohua Chen[2], Ning Liu[2] and Xin Liang[1], *(1)Beijing University of Chemical Technology, China, (2)Beijing University of Technology, China*.

Malachite- and Layered Double Hydroxide-Based Catalyst Precursors for Methanol Synthesis from CO_2-Rich Synthesis Gas
Benjamin Mockenhaupt[1], Gereon Behrendt[1], Lakshmi Pandit[2], Oleg Prymak[1], Jil-Lorean Gieser[1,3], Alexey Boubnov[2], Erisa Saraçi[2], Jan-Dierk Grunwaldt[2] and Malte Behrens[1], *(1)University of Duisburg-Essen, Germany, (2)Karlsruhe Institute of Technology (KIT), Germany, (3)Max Planck Institute for Chemical Energy Conversion (MPI CEC), Germany*.

One Step Conversion of L-Lactic Acid to L,L-Lactide Using ZSM-5 Zeolites with Different Crystal Size As Catalysts
Qintong Huang and Jiang Jiuxing, *Sun Yat-sen University, China*.

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Towards the Green Production of H_2: Binary Pt-Ru Promoted Nb-TiO_2 Based Photo-Catalysts
Uriel Caudillo Flores[1], Irene Barba Nieto[1], Arturo Martinez-Arias[2], Anna Kubacka[1] and Marcos Fernández García[1], *(1)CSIC, Spain, (2)Consejo Superior de Investigaciones Científicas, Spain*.

One-Pot Synthesis of Highly Dispersed Mesoporous Fe and Cu Catalysts for NH_3-SCR
Ole Håvik Bjørkedal and Magnus Rønning, *Norwegian University of Science and Technology (NTNU), Norway*.

Structures of the Edge Sites of Supported Sulfide CoMo Catalysts Prepared By Conventional and CSC Methods Using IR and Chemometric Approaches
Françoise Maugé, Laetitia Oliviero, Arnaud Travert, Luz Zavala Sanchez and Elizabeth Dominiguez, *Laboratoire Catalyse et Spectrochimie, Normandie University, Ensicaen, Unicaen, CNRS, France*.

Aqueous Dilute Ionic Liquid Electrolytes to Influence CO_2 Electroreduction over Copper
Samaneh Sharifi Golru[1,2] and Elizabeth J. Biddinger[1,2], *(1)The Graduate Center of the City University of New York, USA, (2)The City College of New York, CUNY, USA*.

Mn Single Atom Catalyst Promotes Peroxone Reaction for Wastewater Treatment
Yongbing Xie and Hongbin Cao, *Institute of Process Engineering, Chinese Academy of Sciences, China*.

A Dual Functional Catalyst for CO_2 Capture and Sabatier Reaction
Premanath Murge and Srikanta Dinda, *Birla Institute of Technology and Science, Pilani, Hyderabad Campus, India*.

Effect of Phase Purity of Ynu-5 Zeolite Catalyst on Dimethyl Ether-to-Olefin Reaction
Yoshihiro Kubota and Qing Liu, *Yokohama National University, Japan*.

CO_2 Hydrogenation to Methanol over Cu/ZnO/Al_2O_3 Catalyst Via Hydrotalcite-like Precursors: The Role of CO in the Reactant Mixture
Ying Liu[1], Xiaofang Liu[2], Zhaoxuan Wu[2], Shunan Zhang[2], Hui Wang[3] and Yuhan Sun[2], *(1)Shanghai Advanced Research Institute, Chinese Academy of Sciences, Shanghai 201210, PR China, China, (2)Shanghai Advanced Research Institute, Chinese Academy of Sciences, China, (3)University of the Chinese Academy of Sciences, China*.

New Physio-Chemical Insights into Aldol Reactions over SBA-15 Supported Proline Catalysts through NMR Diffusion and Relaxation Time Measurements
Graziano Di Carmine, Carmine D'Agostino and Christopher Parlett, *University of Manchester, United Kingdom*.

Unconventional Materials As Remarkable Bifunctional Electrocatalysts for Alkaline Water Electrolysis
Prashanth Menezes[1] and Matthias Driess[2], *(1)Technical University of Berlin, Germany, (2)Technische Universität Berlin, Germany*.

Path-Dependent NO_x Trapping and NO_x Mobility in Lean NO_x Traps
Ty Caudle, *BASF, USA*.

The Effect of Synthesis Methods on the Deactivation of Ni/$Ce_{0.83}Zr_{0.17}O_2$ catalysts for Methane Dry Reforming
Yimeng Lyu, Rui Xu, Jennifer Jocz and Carsten Sievers, *Georgia Institute of Technology, USA*.

Prediction Confidence of Distinguishing High Activity Catalysts
Olga Vinogradova and Venkatasubramanian Viswanathan, *Carnegie Mellon University, USA*.

Determining the Nature of Silver Species in Ag Supported Catalysts By the CO Oxidation Reaction
Antonio Eduardo Palomares[1], Fernando REy[1], Irene Lopez[1], Noelia Barrabes[2], Guenther Rupprechter[3], Stephan Pollit[2], Vera Truttmann[2] and Clara Yago[2], *(1)Instituto Tecnologia Quimica (UPV-CSIC), Spain, (2)Technische Universität Wien, Austria, (3)Technical University Vienna, Austria*.

Condition-Dependent Pd Speciation and NO Adsorption Sites in Pd/SSZ-13 Passive NOx Adsorber
Yuntao Gu[1], Keka Mandal[1], Karl Westendorff[1], Sichi Li[2], Lars C. Grabow[3], Josh A. Pihl[4], Chris Paolucci[1] and William Epling[1], *(1)University of Virginia, USA, (2)Lawrence Livermore National Laboratory, USA, (3)University of Houston, USA, (4)Oak Ridge National Laboratory, USA*.

Stable Cr-Based Catalyst for Propane Oxidative Dehydrogenation with CO_2 As Mild Oxidant
Hedun Wang and George Tsilomelekis, *Rutgers University, USA*.

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Correlating Treatment Conditions and Reaction Properties with the Atomic-Scale Environments of Pt Supported on NaY Zeolite Catalyst
Tsatsral Battsengel[1], Randall Meyer[2], Allen Burton[2], Mobae Afeworki[2], Robert Carr[2], Pedro Serna[2], Aaron Sattler[2] and Bradley Chmelka[1], *(1)University of California Santa Barbara, USA, (2)ExxonMobil Research and Engineering, USA*.

CdSe / Cd Se Te Nanoplatelet-Functionalized TiO_2 for Efficient Photocatalytic NO_x Oxidation and Storage (PHONOS) Under UV-a and VIS Irradiation
Elnaz Ebrahimi[1], Muhammad Irfan[1,2], Farzan Shabani[1], Yusuf Koçak[1], Bartu Karakurt[1], Hilmi Volkan Demir[1,3] and Emrah Ozensoy[1], *(1)Bilkent University, Turkey, (2)National Centre for Physics, Pakistan, (3)Nanyang Technological University, Singapore*.

Synthesis of Highly Dispersed Pd on CeO_2-Reduced Graphene Oxide Support
Carlos Alberto Franchini[1], Jordi Llorca[2], Alexei Kuznetsov[1] and Adriana Maria Silva[3], *(1)Instituto Nacional de Metrologia e Qualidade, Brazil, (2)Universitat Politecnica de Catalunya, Spain, (3)Instituto Nacional de Pesquisas Espaciais, Brazil*.

Synthesis of MoS_x/PANI Via Polymer Assisted Self-Assembly Method and Study of Catalytic Activity Towards Selective HDS
Denis Uzio[1], Etienne Girard[2] and Sourav Ghosh[1], *(1)Institut Français du Pétrole et Energies Nouvelles (IFPEN), France, (2)IFP Energies nouvelles, France*.

Sustainable Ethylene Glycol Direct Production from Cellulose Using Ru-W Supported on Glucose-Derived Carbons
Lucília Ribeiro, Natalia Rey-Raap, José L. Figueiredo, José J Órfão and M. Fernando R. Pereira, *University of Porto, Faculty of Engineering, Portugal*.

Investigating the Influence of Co-Solvents on Bronsted Acid Catalyzed Reactions in Biomass Conversion Using Molecular Dynamics and Metadynamics.
José Carlos Velasco Calderón and Samir Mushrif, *University of Alberta, Canada*.

Activation and Hydrogenation of Dinitrogen Under Mild Conditions
Qianru Wang[1] and Ping Chen[2], *(1)Dalian Institute of Chemcial Physics, Chinese Academy of Sciences, China, (2)Dalian Institute of Chemical Physics, China*.

Fenton-like Catalysis of $Mn_{1.8}Fe_{1.2}O_4$ Nanospheres for Bisphenol a Degradation: Synergism between Mn and Fe
Guixiang Huang and Hanqing Yu, *University of Science & Technology of China, China*.

Ru (II) Complexes Containing Phosphorous-Nitrogen Ligands Active Catalysts in Hydrogenation of Furfural
P. Aguirre[1], Sergio Moya[2], Gonzalo Valdebenito[1], Sebastian Parra Melipan[1] and Braulio Aranda[3], *(1)Universidad de Chile, Facultad de Ciencias Químicas y Farmacéuticas, Chile, (2)Universidad de Santiago de Chile, Facultad de Quimica y Biologia, Chile, (3)Universidad de la Frontera, Chile*.

Effect of Surface Defects on Pd/TiO_2 Catalyst for HCHO Oxidation
Chunying Wang[1], Yaobin Li[1], Changbin Zhang[2], Wenpo Shan[1], Hong He[1,2] and Yan Zhang[1], *(1)Institute of Urban Environment, Chinese Academy of Sciences, China, (2)Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences, China*.

Catalytic Consequences of Synthetic Strategy and Mesopore Configuration on Activity and Selectivity of Hydrocarbon Cracking/Hydrocracking over Hierarchical Zeolite Catalysts
Ke Zhang, Sergio Fernandez, Elisha Converse and Sarah Kobaslijia, *Aramco Services Company: Aramco Research Center- Boston, USA*.

Selectivity Control Using Core-Shell Catalyst for CO_2 Hydrogenation to Hydrocarbons
Wai Ming Hui and Sibudjing Kawi, *National University of Singapore, Singapore*.

An in-Situ XRD Study of the Stabilization of Ultra-Small Platinum Nanoparticles By Nitrogen-Doped Carbon Supports
Fahim B.A. Rahman, Ngoc Tien Huynh, Hector Colon-Mercado and John R. Regalbuto, *University of South Carolina, USA*.

Understanding the Mechanism for Reverse Aldol Condensation on Mo-Based Catalysts
Mathew Rasmussen and J. Will Medlin, *University of Colorado, USA*.

Single-Site Catalysts (SCCs): Study of the Role of the Solvent in the Catalyst Preparation
Grazia Malta[1], Tanja Parmentier[1], Simon Freakley[2], Simon Kondrat[3], Christopher J. Kiely[1] and Graham J. Hutchings[1], *(1)Cardiff University, United Kingdom, (2)University of Bath, United Kingdom, (3)Loughborough University, United Kingdom*.

Hybridized Catalytic Cracking for Light Olefins Production
Na Young Kang, Yu Jin Lee, Chul-Ung Kim and Yong-Ki Park, *Korea Research Institute of Chemical Technology, Korea, Republic of (South)*.

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Mechanistic Details and Selectivity Limitations for Propane Oxidation on M1 Phase Mixed Metal Oxides
Yilang Liu, Adam Twombly and Prashant Deshlahra, *Tufts University, USA*.

Unraveling the Mechanism of High Photocatalytic Oxygen Evolution of $BaTaO_2N$ Nitrided from $(Na_{1/4}Ba_{3/4})(Zn_{1/4}Ta_{3/4})O_3$ Studied By Transient Absorption Spectroscopy
Junie Jhon Vequizo[1], Takashi Hisatomi[1], Kosaku Kato[2], Shraddha Jadhav[1], Tsuyoshi Takata[1], Akira Yamakata[2] and Kazunari Domen[3], *(1)Shinshu University, Japan, (2)Toyota Technological Institute, Japan, (3)The University of Tokyo, Japan*.

Tuning the Activity and Stability of Ni-Based Bimetallic Exsolved Nanoparticles for Methane Dry Reforming
Kandis Leslie Abdul-Aziz[1], Soham Shah[1], Jenna Yzunza[1], Ryan Pan[1], Xiaoqing Pan[2] and Mingjie Xu[2], *(1)University of California, Riverside, USA, (2)University of California, Irvine, USA*.

Studies on Platinum-Ceria Catalysts Active at Room Temperature
Helena Kaper[1], Frédéric Meunier[2], Luis Cardenas[2], Bretislav Smid[3], Misha Vorohtam[3], Kassiogé Dembele[4] and Thomas Lunkenbein[5], *(1)CNRS, France, (2)CNRS / Université Claude Bernard Lyon1 / Université de LYON, France, (3)Charles University, Czech Republic, (4)Fritz Haber Institute of the Max Planck Society, Germany, (5)Fritz-Haber Institut der Max-Planck-Gesellschaft, Germany*.

Synthesis of Jet Fuel Via Fischer-Tropsch Technology Using Mesoporous Y-Type Zeolite Catalysts
Jie Li[1,2], Yingluo He[2], Peipei Zhang[2], Li Tan[2], Xiaobo Peng[3], Guohui Yang[2] and Noritatsu Tsubaki[2], *(1)Yangzhou University, China, (2)University of Toyama, Japan, (3)National Institute for Materials Science, Japan*.

Elucidating Deactivation Mechanisms for Heterogeneous Re-Based Olefin Metathesis Catalysts
Fan Zhang and Susannah L. Scott, *University of California Santa Barbara, USA*.

N-Doped Carbon-Based Fe Nanoparticles Derived from Zn-Fe Bimetal-Organic Frameworks As Highly Efficient Acylation Catalysts
Hao Zhang, Xiaojing Song, Dianwen Hu, Wenxiang Zhang and Mingjun Jia, *Jilin University, China*.

High Yield Jet Fuel Range Aromatic from Biomass Fast Pyrolysis Using Multi-Functional Catalyst Induced Cascade Reaction
Kumar Ranjan Rout, De Chen, Isaac Yeboah, Zhenping Cai, Kishore Rajendran and Yahao Li, *Norwegian University of Science and Technology, Norway*.

Photocatalytic Decomposition of N_2O over $MeSO_2Cl$
Marcel Šihor, Martin Reli, Petr Praus, Aneta Smýkalová, Kryštof Foniok and Kamila Kočí, *VSB - Technical University of Ostrava, Czech Republic*.

In Situ Study of Ethanol Oxidation over V_2O_5/TiO_2 and V_2O_5/CeO_2 Catalysts
Vasily Kaichev, *Novosibirsk State University, Russian Federation; Boreskov Institute of Catalysis, Russian Federation*.

The Role of Oxygen Species of Chromium Oxide Catalysts in Induction Period of Propane Dehydrogenation
Changyeol Song, Hawon Park, Won Choon Choi, Yong-Ki Park and Dae Sung Park, *Korea Research Institute of Chemical Technology, Korea, Republic of (South)*.

Promotion Effect of Rare Earth Metal (Ce, Nd, Pr) on Physico-Chemical Properties of M-Al Mixed Oxides (M = Cu, Ni, Co) and Their Catalytic Activity in N_2O Decomposition
Phuoc Hoang Ho[1,2,3], Magdalena Jabłońska[1], Francesco Di Renzo[3], Giuseppe Fornasari[2], Angelo Vaccari[2], Patricia Benito[2] and Regina Palkovits[1], *(1)RWTH Aachen University, Germany, (2)University of Bologna, Italy, (3)Institut Charles Gerhardt, Ecole Nationale Supérieure de Chimie de Montpellier, France*.

Electron Transfer Caused By H_2 Spillover Under Reaction Condition for Controlling CO_2 Hydrogenation Selectivity
Xiaoyu Li[1,2], Jian Lin[1], Lin Li[1], Aiqin Wang[1], Botao Qiao[1] and Xiaodong Wang[1], *(1)Dalian Institute of Chemical Physics, Chinese Academy of Sciences, China, (2)University of Chinese Academy of Sciences, China*.

Activity of Unsupported $NiWS_2$ Catalysts for Slurry Phase Hydrocracking of Vacuum Residue
Yoon-Hyun Hwang and Yong-Kul Lee, *Dankook University, Korea, Republic of (South)*.

Insights into the Rare Earth Speciation Transformation of RE-Exchanged Y Zeolites
Yu Hui[1], Yun Zu[2], Yucai Qin[2] and Lijuan Song[1], *(1)College of Chemistry and Chemical Engineering, China University of Petroleum (East China), Qingdao 266555, Shandong Province, P. R. China, China, (2)Key Laboratory of Petrochemical Catalytic Science and Technology, Liaoning ShiHua University, Fushun 113001, Liaoning Province, P. R. China, China*.

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Vapor-Phase Dehydration of 1,3-Butanediol over Y_2O_3-ZrO_2 Catalysts
Yoshitaka Matsumura, Takuma Nemoto, Yasuhiro Yamada and Satoshi Sato, *Chiba University, Japan*.

Surface Functionalization of Heterogeneous Catalyst By Atomic Layer Deposition Process to Control Catalyst Deactivation
Sachin Rawalekar, Sunil Agrahari, Chintansinh Chudasama, Katravulapalli Murthy and Rakshvir Jasra, *Reliance Industries Limited, India*.

Impact of Fe/Zn Ratio and Binder on $ZnFe_2O_4$ Spinel Catalyst for Oxidative Dehydrogenation of Butenes to Butadiene
Krishna Mohan Jinka, Vivek K Srivastava, Hanmant R Gurav, Uttam Maity, Unnikrishnan Sreedharan and Rakshvir Jasra, *Reliance Industries Limited, India*.

Facile Synthesis of MFI-Type Zeolites through Steam-Assisted Crystallization Method
Xiaomin Zhang, *Dalian Institute of Chemical Physics, Chinese Academy of Sciences, China*.

Monolithic Catalysts for Oxidative Coupling of Methane Prepared with Assistance of 3D Printing: From a Digital Project to Working Catalysts
Marcelina Basta[1], Maria Muradova[1], Barbara Michorczyk[1], Anna Rokicinska[2], Robert Grzywacz[1], Piotr Kustrowski[2] and Piotr Michorczyk[1], *(1)Cracow University of Technology, Poland, (2)Jagiellonian University, Poland*.

Platinum Doped Ceria Catalysts for Direct Conversion of Methane
Daniel Eggart[1], Xin Huang[2], Anna Zimina[1], Xiulian Pan[2] and Jan-Dierk Grunwaldt[1], *(1)Karlsruhe Institute of Technology (KIT), Germany, (2)Dalian Institute of Chemical Physics, Chinese Academy of Sciences, China*.

Rational Design of Metal and Bimetallic Catalysts for the Production of Biorenewables
Shelaka Gupta, Md Imteyaz Alam, Tuhin Suvra Khan and M. Ali Haider, *Indian Institute of Technology Delhi, India*.

Promotional Effect of Cu Additive for the Selective Catalytic Oxidation of *N*-Butylamine over $CeZrO_x$ Catalyst
Xin Xing and Jie Cheng, *University of Chinese Academy of Sciences, China*.

Hydrogen Formation over Gold Nanorod-Modified Plasmonic Photocatalyst Under Irradiation of Vis and NIR
Tomoya Kojima[1], Atsuhiro Tanaka[1,2] and Hiroshi Kominami[1], *(1)Kindai University, Japan, (2)Japan Science and Technology Agency (JST), Japan*.

What Is the Role of Different Promoters in Cu-Based Catalysts for Ester Hydrogenolysis?
Jaroslav Aubrecht[1], Violetta Pospelova[1], Oleg Kikhtyanin[2] and David Kubicka[1,2], *(1)University of Chemistry and Technology, Czech Republic, (2)Technopark Kralupy, University of Chemistry and Technology Prague, Czech Republic*.

Controlling of Al Distribution in SSZ-13 Zeolite
Kinga Mlekodaj[1], Stepan Sklenak[2], Veronika Pashkova[2], Edyta Tabor[2] and Jiri Dedecek[2], *(1)J. Heyrovský Institute of Physical Chemistry of the CAS, v. v. i., Czech Republic, (2)J. Heyrovský Institute of Physical Chemistry of the CAS, Czech Republic*.

High Yield Syngas Production through Cyclic Processes of CH_4 Reforming and CO_2 Dissociation over $Ni/La_{0.9}Sr_{0.1}FeO_3$
Daniel Sastre[1], David Serrano[1], Patricia Pizarro[1] and Juan Coronado[2], *(1)IMDEA Energy, Spain, (2)CSIC, Spain*.

SAPO-34 Deactivation Profile Evolution in a Fixed Bed Reactor for MTO Process
Leyre Pardo, Diego Zapater, Javier Lasobras, Jaime Soler, Javier Herguido and Miguel Menéndez, *University of Zaragoza, Spain*.

The Impact of Nickel Addition for the Cobeta Zeolites Activity in Fischer-Tropsch Synthesis
Renata Sadek[1,2], Karolina Chalupka[2], Pawel Mierczynski[2], Waldemar Maniukiewicz[2], Jacek Rynkowski[2], Jacek Gurgul[3] and Stanislaw Dzwigaj[1], *(1)Sorbonne Université - CNRS, France, (2)Lodz University of Technology, Poland, (3)Jerzy Haber Institute of Catalysis and Surface Chemistry Polish Academy of Sciences, Poland*.

Understanding the Distinctive Activity between Mo- and W-Containing Catalysts in the Metathesis of Ethylene with 2-Butenes to Propene
Tatiana Otroshchenko[1], Ole Reinsdorf[1], David Linke[2] and Evgenii V. Kondratenko[2], *(1)Leibniz-Institut für Katalyse e. V., Germany, (2)Leibniz-Institut für Katalyse e.V., Germany*.

Uniform Catalytic Layer of Mechano-Thermally Processed MWCNT Coated on Cordierite Monoliths and Its Application in the Ozonation of Emerging Organic Pollutants
João Restivo, Carla A. Orge, A. Sofia G. G. Santos, O. Salomé G. P. Soares and M. Fernando R. Pereira, *Faculty of Engineering of University of Porto, Portugal*.

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Toluene and 1-Methylnaphthalene Diffusion within High-Silica Zeolites in Sub- and Super-Critical Fluids of Solvent
Yuta Nakasaka[1], Xinluona Su[1], Ryo Nakano[1], Yoshihiro Kubota[2], Satoshi Inagaki[2] and Takao Masuda[1], *(1)Hokkaido University, Japan, (2)Yokohama National University, Japan*.

Hydrogen Evolution Via Formic Acid Catalytic Decomposition over the Structurally Unique Pd/α-Fe_2O_3 Interfaces
Lingli Gu and Weijie Ji, *Nanjing University, China*.

EXAFS Studies to Determine the Role of Support on $IrReO_x$ Catalysts for CO Hydogenolysis of Polyols
Emanuel Virgilio[1], Maria E. Sad[1], Armando Borgna[2] and Cristina L. Padró[1], *(1)Universidad Nacional del Litoral, Argentina, (2)Institute of Chemical and Engineering Sciences, A*STAR, Singapore*.

Ultra-Small and Highly-Dispersed Mop Particles Prepared By Precursor Pyrolyzing Method and Their Remarkable Enhanced Catalytic Performance in Higher Alcohols Synthesis
Bin Kang, Yue Su and Haiquan Su, *Inner Mongolia University, China*.

Study of the Isothermal Oscillatory Behavior of Nitrous Oxide Decomposition over Cu-ZSM-5 Catalysts
Marco Piumetti, Tahrizi Andana, Samir Bensaid, Marco Armandi, Barbara Bonelli and Raffaele Pirone, *Politecnico di Torino, Italy*.

Size-Controlled and Monodispersed Nano-Gold Embedded Ordered Mesoporous Carbon As Promising Catalyst for Selective Oxidation of Glycerol to High Value-Added Glyceric Acid
Parasuraman Selvam, *Indian Institute of Technology-Madras, India*.

Green, Facile, Synthesis of Few-Layer MoS_2/C Nanohybrids Catalyst Using Spatial Confined Self-Assembly Supermolecule Precursor for Enhanced Hydrogen Generation
Luyao Zheng[1] and Yi Tang[2], *(1)Fudan University, China, (2)Shanghai Key Laboratory of Molecular Catalysis and Innovative Materials and Laboratory of Advanced Materials, Fudan University, China*.

Silica-Alumina As Catalyst for Melt Polycondensation of L-Lactic Acid
Mateus Paiva, Juliene França, Sílvia Dias and José Dias, *University of Brasília, Brazil*.

Nanosized Zeolites Induced Highly Efficient NiMo Sulfide Catalysts for Deep Hydrodesulfurization
Jiancong Liu, *Heilongjiang University, China*.

Development of a Novel Passive NOx Adsorber for Reduction of Low-Temperature NOx Emissions
Prateek Khatri and Divesh Bhatia, *Indian Institute of Technology Delhi, India*.

Optimization and Structuration of Ni-Based Catalyst to Produce High Quality Syngas from Dried-Wood Gasification Processes.
Dolores Jurado Fuentes, Sébastien Thomas and Anne-Cécile Roger, *ICPEES-ECPM UMR 7515, France*.

Surface Modification of TiO_2 with Oxide Nanoclusters for CO_2 Activation
Michael Nolan, *Tyndall National Institute, Ireland*.

Electric Field Assisted Heterogeneous Catalysis
Fanglin Che[1], Jake Gray[2], Su Ha[2] and Jean-Sabin McEwen[2], *(1)University of Massachusetts Lowell, USA, (2)Washington State University, USA*.

Operando Investigation of Platinum Nanoparticle Structure Evolution during Oxidation of NO to NO_2 at Nitric Acid Plant Conditions
Ata ul Rauf Salman[1], Muhammad Zubair[1], Samuel K. Regli[1], Bjørn Christian Enger[2], Rune Lødeng[2], David Waller[3] and Magnus Rønning[1], *(1)Norwegian University of Science and Technology (NTNU), Norway, (2)SINTEF Industry, Norway, (3)YARA Technology Center, Norway*.

How to Achieve Highly Selective Yet Simply Available VPO-Based Catalyst for Sustainable Acrylic Acid Production Via Acetic Acid-Formaldehyde Condensation
Jun Liu, Xinzhen Feng and Weijie Ji, *Nanjing University, China*.

Automated Reaction Mechanism Development for the CO_2 Methanation on Ni Catalysts
Bjarne Kreitz[1,2], Gregor Wehinger[1], Franklin Goldsmith[2] and Thomas Turek[1], *(1)Clausthal University of Technology, Germany, (2)Brown University, USA*.

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Distinct Selectivity in the Oxidation of 5-(Hydroxymethyl)Furfural over Gold- and Silver-Based Catalysts
Oliver Schade, Kai F. Kalz, Dominik Neukum, Erisa Saraçi and Jan-Dierk Grunwaldt, *Karlsruhe Institute of Technology (KIT), Germany*.

Selective Etching Induced Synthesis of Hollow Rh Nanospheres Electrocatalyst for Alcohol Oxidation Reactions
Yongqiang Kang, *Tsinghua University, China*.

Redefining the Possibilities for Lab Testing of Fluid Catalytic Cracking (FCC) Catalysts
Marius Kirchmann, *hte GmbH, Germany*.

Pure Hydrogen Production in a Water Gas Shift Membrane Reactor and in a Low Temperature Steam Reforming Membrane Reactor
Francesco Luca Basile[1], Salvatore Abate[2], Andrea Fasolini[1] and Gabriele Centi[3], *(1)University of Bologna, Italy, (2)University of Messina, Italy, (3)University of Messina and ERIC aisbl, Italy*.

Effect of Biodiesel Poisoning and Hydrothermal Ageing in Different Pt:Pd Ratio Diesel Oxidation Catalysts – an Experimental and Modeling Study
Guillermo Pedrosa[1,2], Sergio Ordoñez[1], Paola Anguita[1], Eduard Emil Iojoiu[2] and Anne Giroir-Fendler[1], *(1)University of Lyon, France, (2)Renault Trucks - Volvo Group Trucks Technology, France*.

Maximizing CH_4 Vs. H_2 Selectivity in Plasmon-Induced Artificial Photosynthesis over Gold-Based Composites
Steven Bardey[1,2], Céline Pagis[2], Audrey Bonduelle-Skrzypczak[2], Antoine Fécant[2], Valérie CAPS[1] and Valérie Keller[1], *(1)CNRS / University of Strasbourg, France, (2)IFP Energies Nouvelles (IFPEN), France*.

Utilizing Emergent Cu Nanoparticles from $La_{0.4}Ca_{0.4}Ti_{0.94}O_{3-\delta}$ Perovskite for CO Oxidation
Peng Ma and John Irvine, *University of St Andrews, United Kingdom*.

Dirhodium(II) Complexes: Synthesis, Structure and Application in Allylic Oxidation.
Sinethemba Mkhize and Siyabonga Ngubane, *University of Cape Town, South Africa*.

Unravel the Low Temperature Oxygen Diffusion in Yttria-Stabilised Zirconia – Impact for the Catalytic Oxidation of Methane
Alexandre Nau[1], Rémy Pointecouteau[1], Mélissandre Richard[2], Thomas Belin[1], Fabien Can[1], Clement Comminges[1] and Nicolas Bion[1], *(1)Institut de Chimie des Milieux et Matériaux de Poitiers (IC2MP), CNRS, University of Poitiers, France, (2)Unité de Catalyse et Chimie du Solide (UCCS) – ENSCL, University of Lille, France*.

Oxidative Coupling of Methyl Furoate to Form 5,5'-Dicarboxylic-2,2'-Bifuran Methyl Esters
Mingchun Ye and Raul F. Lobo, *University of Delaware, USA*.

Highly Dispersed Ruthenium Nanoparticles on Graphene Aerogels for Highly Active CO_x-Free Hydrogen Production Catalyst from Ammonia
Tolga Kocer, F. Eylul Sarac Oztuna, Samira Kurtoglu, Ugur Unal and Alper Uzun, *Koc University, Turkey*.

Catalytic Partial Oxidation of Methane on Ni/M_2O_3 (M = La, Pr) Catalysts. Effect of the Support on Syngas Selectivity and Catalyst Stability.
Soraia Brandão, *Universidade Federal da Bahia, Brazil*.

Highly Efficient Gasoline Reforming to Syngas over $Rh/Ce_{0.75}Zr_{0.25}O_2$-δ-η-Al_2O_3/FeCrAl Structured Catalyst
Natalia Ruban, *Novosibirsk State University, Russian Federation; Boreskov Institute of Catalysis, Russian Federation*.

UPS and Diffuse Reflectance Spectroscopies Combined to Position the Energy Levels of Photocatalytic Nanopowders
Clément Maheu[1], Luis Cardenas[1], Sophie Carenco[2], Clément Larquet[2], Eric Puzenat[1], Pavel Afanasiev[1] and Christophe Geantet[1], *(1)UMR 5256, Université de Lyon, CNRS, France, (2)UMR 7574 Sorbonne Université, CNRS, Collège de France, France*.

Development and Assessment of a Criterion for the Application of Brønsted-Evans-Polanyi Relationships for Dissociation Catalytic Reactions at Surfaces
Zhao-Bin Ding and Matteo Maestri, *Politecnico di Milano, Italy*.

Gamma-Valerolactone (GVL) and Hydrogen Production from Cellulose-Derived Levulinic Acid, Using the Co-Produced Formic Acid As H_2 Source
Francesco Luca Basile, Andrea Fasolini, Aisha Matayeva, Giuseppe Fornasari and Angelo Vaccari, *University of Bologna, Italy*.

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Design Strategies for Efficient Non-Stoichiometric Mixed Metal Oxide Electrocatalysts: Correlating Measurable Oxide Properties to Electrocatalytic Performance
Samji Samira, Xiangkui Gu and Eranda Nikolla, *Wayne State University, USA*.

Reduction of Dimethyl Oxalate to Ethylene Glycol Via Heterogeneous Ag-Based Catalysts: Reaction Kinetic and Surface Spectroscopic Investigation
Nicolas Gleason-Boure and Christopher T. Williams, *University of South Carolina, USA*.

Ru Supported Swellable Organically Modified Silica Catalyst for Aqueous Phase Hydrogenation of Toluene
Anagha Hunoor[1], Saurabh Ailawar[1], Paul Edmiston[2] and Umit S. Ozkan[1], *(1)The Ohio State University, USA, (2)The College of Wooster, USA*.

A Study of Vanadium Carbide Catalysts on the Reverse Water Gas Shift Reaction
Arturo Pajares[1], Hector Prats[2], Alexandre Romero[2], Francesc Vines[2], Pilar Ramirez de la Piscina[1], Ramon Sayos[2], Francesc Illas[2] and Narcis Homs[1], *(1)University of Barcelona, Spain, (2)Universitat de Barcelona, Spain*.

Formation of 2-Phenyl Ethyl Acetate in Presence of Cation Exchange Resin Amberlyts-15
Kapil Satya Pal Singh, *Indian Institute of Technology Bombay, India*.

Kinetic Analysis of Carbon Formation in Methane Dry Reforming on Rh in Spatially-Resolved Operando-Raman Annular Reactor
Gianluca Moroni, Alessandro Donazzi and Matteo Maestri, *Politecnico di Milano, Italy*.

Effects of Surface Barriers on the Catalytic Performance of Zeolites
Mohammad Alkhunaizi, Tobias Weissenberger, Gopinathan Sankar and Marc-Olivier Coppens, *University College London, United Kingdom*.

Transition Metal Carbide Electrodes Modified By High-Powered Impulse Magnetron Sputtering
David Barlaz[1], David Ruzic[1] and Brian Rosen[2], *(1)University of Illinois at Urbana-Champaign, USA, (2)Tel-Aviv University, Israel*.

Strategies for Efficient Photocatalysts for CH_4 Transformation and H_2 Production from Water
Junwang Tang, Yiou Wang, Jijia Xie and David Martin, *University College London, United Kingdom*.

Characterizing CO_2 Photocatalysts Using Simple Methods
Thomas Wood and Geoffrey Ozin, *University of Toronto, Canada*.

CO_2 Assisted Oxidative Dehydrogenation of Ethane over Supported Metal Oxide Catalysts
Thu Nguyen, Fuat E. Celik and George Tsilomelekis, *Rutgers, The State University of New Jersey, USA*.

Effect of Fe_2O_3-to-V_2O_5 Ratios on Product Selectivity in the Reduction of NO By NH_3 over Fe_2O_3-Promoted V_2O_5/TiO_2-Based Catalysts
Thi Phuong Thao Nguyen, Moon Hyeon Kim and Ki Hyuck Yang, *Daegu University, Korea, Republic of (South)*.

Using Ion-Beam Sputtering to Modify Heterogeneous Nanodispersed Catalysts
Ruiari O'Donnell[1], Salvatore Scaglione[2], Veronica Martinez Celorrio[3] and Nancy Artioli[1], *(1)Queen's University Belfast, United Kingdom, (2)ENEA CR Casaccia, Italy, (3)Diamond Light Source Ltd, United Kingdom*.

Atomic Adsorption on Disordered Vs. Ordered 3d Metal-Pt Alloys
Shengjie Zhang, William Shelton and Ye Xu, *Louisiana State University, USA*.

The Influence of the Surface Properties of Cu/ZrO_2 Systems in Methanol Steam Reforming Measured with a Unique *Operando* FTIR-MS Setup
Maximilian Watschinger, Kevin Ploner, Bernhard Klötzer and Simon Penner, *University of Innsbruck, Austria*.

Unlocking the Relationships between Lignin Structural Motifs and Its Catalytic Hydrogenolysis for Upgradeability
Ling-Ping Xiao[1], Shuizhong Wang[2], Shihao Su[2], Xiao-Hong Chen[1], Run-Cang Sun[1] and Guoyong Song[2], *(1)Dalian Polytechnic University, China, (2)Beijing Forestry University, China*.

Relationships between Intrinsic Properties and Catalytic Ability of $AMn_xCu_{(1-x)}O_3$ (A=La, Pr) Perovskites
Spencer James Carey[1], Giulia Bellini[1], Peter Kraus[1], Frank Girgsdies[1], Olaf Timpe[1], Detre Teschner[2], Michael Hävecker[1,2], Robert Schlögl[1] and Annette Trunschke[1], *(1)Fritz-Haber-Institut der Max-Planck-Gesellschaft, Germany, (2)Fritz Haber Institute of the Max Planck Society, Germany*.

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Influence of Preparation Procedure on Catalytic Activity of PdBEA Zeolites in Liquid Phase Hydrodechlorination of Diclofenac
Stanislaw Dzwigaj[1], Emil Kowalewski[2], Bartosz ZAwadzki[2], Izabela Kaminska[2], Sandra Casale[3], Monika Asztemborska[2] and Anna Srebowata[2], *(1)Sorbonne Université - CNRS, France, (2)Institute of Physical Chemistry, Polish Academy of Sciences, Poland, (3)University of Pierre and Marie Curie, France*.

***In Situ* and *Operando* TEM Visualization of Catalytically-Driven Oxygen Transfer at Pt/CeO_2 Interfaces during CO Oxidation**
Joshua Vincent[1], Wei-Chang David Yang[2,3], Canhui Wang[2,3], Renu Sharma[2] and Peter Crozier[1], *(1)Arizona State University, USA, (2)National Institute of Standards and Technology, USA, (3)University of Maryland - College Park, USA*.

Development of New Nanoparticulate Gold Catalysts Using Acidic Metal Oxide Supports
Toru Murayama, Mingyue Lin, Chihiro Mochizuki, Tamao Ishida and Masatake Haruta, *Tokyo Metropolitan University, Japan*.

Sulfur Removal and Upgrading of Extra Heavy Crude Oil Using Alumina-Supported FeMo Carbide and Nitride Catalysts
Yanet Villasana[1,2], Franklin José Méndez[2,3] and Joaquín L. Brito[1,2], *(1)Universidad Regional Amazónica Ikiam, Ecuador, (2)Instituto Venezolano de Investigaciones Científicas, Venezuela (Bolivarian Republic of), (3)Universidad Nacional Autónoma de México (UNAM), Mexico*.

Optimizing the Oxygen Reduction Reaction While Accounting for Uncertainty Via New Data Science Methods
Joshua Lansford[1], Jinchao Feng[2], Markos Katsoulakis[2] and Dionisios G. Vlachos[1], *(1)University of Delaware, USA, (2)University of Massachusetts at Amherst, USA*.

Structure and Performance Tunability in Ternary Metal Phosphide Nanoparticle Catalysts for Hydrodeoxygenation of Guaiacol
Nicole A. LiBretto[1], Tuong Bui[2], Muhammad Zubair[3], Kinga A. Unocic[4], Frederick G. Baddour[2], Michael B. Griffin[2], Daniel Ruddy[2], Evan C. Wegener[5], Jeffrey T. Miller[1], Joshua A. Schaidle[2], Nicholas M. Bedford[3] and Susan E. Habas[2], *(1)Purdue University, USA, (2)National Renewable Energy Laboratory, USA, (3)University of New South Wales, Australia, (4)Oak Ridge National Laboratory, USA, (5)Argonne National Laboratory, USA*.

Production of Phenolic Compounds Via Upgrading of Lignin Pyrolysis Products over Vanadia Catalysts
Matthew M. Yung, Michael Griffin, Calvin Mukarakate and Mark Nimlos, *National Renewable Energy Laboratory, USA*.

The CO_2 Methanation and the Role of the Reducibility of the Support in the Catalysis Behavior
Oliver Espino[1,2], Priscila da Costa Zonetti[2], Odivaldo C. Alves[3], Roberto R. de Avillez[1] and Lucia Gorenstin Appel[2], *(1)Pontifícia Universidade Católica do Rio de Janeiro, Brazil, (2)Instituto Nacional de Tecnologia, Brazil, (3)Universidade Federal Fluminense, Brazil*.

Application of an Agglomeration Speed-up Algorithm for the Detailed Modeling of Catalytic Chemistry in Fluidized Systems
Riccardo Uglietti, Mauro Bracconi and Matteo Maestri, *Politecnico di Milano, Italy*.

Electronic Structure Engineering in Heterogeneous Catalysis: From Simple Analytical to Machine Learnt Models of Chemisorption on Alloys
Jacques Esterhuizen[1], Bryan Goldsmith[1] and Suljo Linic[2], *(1)University of Michigan, Ann Arbor, USA, (2)University of Michigan, USA*.

Characterization of the Relationship between Activity and Atomic Structure of Rh/Al_2O_3 Three-Way Automotive Catalysts
Cheng-Han Li[1], Jason Wu[2], Andrew (Bean) Getsoian[2] and Joerg R. Jinschek[1], *(1)The Ohio State University, USA, (2)Ford Motor Company, USA*.

Synthesis of Nanocrystalline MgO By Sol-Gel Method and Its Application As Support on Ni/MgO Catalysts for Ethanol Steam Reforming
Luiz G. Possato and Celso Santilli, *Unesp, Brazil*.

Synergy between Oxide and Nitride Phases in Composite Cathodes for High-Temperature Electrocatalytic Ammonia Production
Seval Gunduz, Dhruba J. Deka, Jaesung Kim, Anne Co and Umit S. Ozkan, *The Ohio State University, USA*.

Improving Lifetimes in Platinum-Based Catalysts for Alkane Dehydrogenation with Metal-Support Interactions
Griffin Canning[1], Nicole A. LiBretto[2], Jeffrey T. Miller[2], Deepak Kunwar[1] and Abhaya Datye[1], *(1)University of New Mexico, USA, (2)Purdue University, USA*.

Phyllosilicate Structure Derived Ni-Mg/SBA-15 Catalyst for CO_2 Methanation: The Promoting Effect of Mg Modifier
Plaifa Hongmanorom and Sibudjing Kawi, *National University of Singapore, Singapore*.

Complex Reaction Network Analysis and the Optimal Representation
Pengju Ren[1,2], James Lewis[3], Xiaodong Wen[4] and Yongwang Li[4], *(1)Institute Coal Chemistry, Chinese Academy of Sciences, China, (2)Synfuels China Co., Ltd., China, (3)Institute of Coal Chemistry, Chinese Academy of Sciences, China, (4)Synfuels China Technology Co., Ltd., China*.

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PtPd/ZnO Rod-Catalysts for H_2 Production
Melissa Toledo Toledo[1,2], Albina Gutiérrez MArtínez[2], Pastora Salinas[1], Fernando Morales Anzures[1], Francisco Tzompantzi[3] and Raúl Pérez-Hernández[2], *(1)Universidad del Istmo, Santo Domingo Tehuantepec, Mexico, (2)Instituto Nacional de Investigaciones Nucleares, Mexico, (3)Universidad Autónoma Metropolitana-Iztapalapa, Mexico*.

Dynamic of Brønsted Acid Sites on Inverse Oxide/Metal Catalyst
Jiayi Fu, Shizhong Liu, Stavros Caratzoulas, Weiqing Zheng and Dionisios G. Vlachos, *University of Delaware, USA*.

Aldol Condensation of Cyclopentanone and Acetone on MgO: A Mechanistic Study By DFT
Yu Yan, Gengnan Li, Duong Ngo, Daniel Resasco and Bin Wang, *University of Oklahoma, USA*.

Locating Active Sites for Lattice Oxygen Exchange on Nanoparticle Surfaces at Atomic Resolution
Peter Crozier, Ethan Lawrence, Barnaby Levin, Tara Boland and Shery Chang, *Arizona State University, USA*.

Localizing Metal Atoms and Clusters By Functional Nanoglues
Xu Li[1,2] and Jingyue Liu[1], *(1)Arizona State University, USA, (2)University of Science and Technology of China, China*.

Identification of Different Proton Species in H-ZSM5
Vy Nguyen[1], Kuizhi Chen[2], Steven Crossley[1], Jeffery White[2] and Bin Wang[1], *(1)University of Oklahoma, USA, (2)Oklahoma State University, USA*.

Engineering of Mesoporous Silica Supported Cu-Fe Catalyst for Removal of Volatile Organic Compounds (VOC) from Polluted Air
Petar Djinovic[1], Tadej Zumbar[1], Alenka Ristic[1], Margarita Popova[2], Natasa Zabukovec Logar[1,3] and Natasa Novak Tusar[1,3], *(1)National Institute of Chemistry, Slovenia, (2)IOCCP, Bulgarian Academy of Science, Bulgaria, (3)University of Nova Gorica, Slovenia*.

Formation of Ag-Fe Bimetallic Samples Supported on Mordenite during Ion-Exchange with a Different Order of Component Deposition Studied By EXAFS
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Elucidating and Controlling Coupled Oxidation and Reduction Cycles over Metal Catalysts
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Catalytic Activity of Ni/MgO in the Syngas Production By Methane Tri-Reforming Using CO_2 Rich Streams
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Rodolfo Zanella, *Instituto de Ciencias Aplicadas y Tecnología, Universidad Nacional Autónoma de México, Mexico*.

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Carbon Monoxide Electroreduction By Cu Dendrites Loaded Onto Gas Diffusion Electrodes
David Wakerley[1], Sarah Lamaison[1,2], Chris Hahn[3] and Thomas F. Jaramillo[1], *(1)Stanford University, USA, (2)College de France, France, (3)SLAC National Accelerator Laboratory, USA*.

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Fine-Tuning of Platinum-Carbon Complex Catalysts Toward the Maximum Mass-Specific Yet Stable Reactivity
Wenyao Chen and Xuezhi Duan, *East China University of Science and Technology, China*.

Kinetic Study for Carbonation Reaction of CaO Derived Sorbent
Roger Avendaño, M. Laura Dieuzeide, Pablo Bonelli and Norma Amadeo, *Universidad de Buenos Aires, Argentina*.

Mixed Copper-Zinc-Silver Systems Supported on Mordenite: NO Adsorption Study By Temperature Programmed Desorption and NO Catalytic Reduction
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Dry Gel Conversion and Hydrothermal Preparation of SAPO-34 Using Mixed Template: Characterization and Comparison.
baljinder Kaur Riyar and vijay Kumar Agarwal, *Indian Institute of Technology Roorkee, India*.

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Geronimo Canesi[1], M. Laura Dieuzeide[1], Matias Jobbagy[2] and Norma Amadeo[3], *(1)ITHES (UBA-CONICET), Argentina, (2)INQUIMAE (UBA-CONICET), Argentina, (3)Universidad de Buenos Aires, Argentina*.

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Adsorption of CO and NO_2 on CuO_x surfaces
Burcu Karagoz[1], Dario Stacchiola[1], Maija Kukla[2], Roman Tsyshevskiy[2] and Ashley Head[1], *(1)Brookhaven National Laboratory, USA, (2)University of Maryland, USA*.

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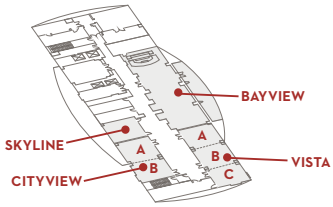

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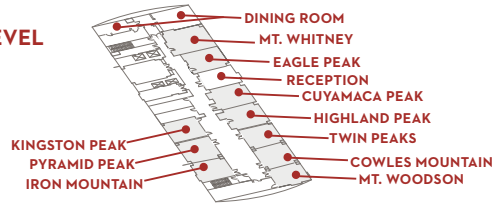

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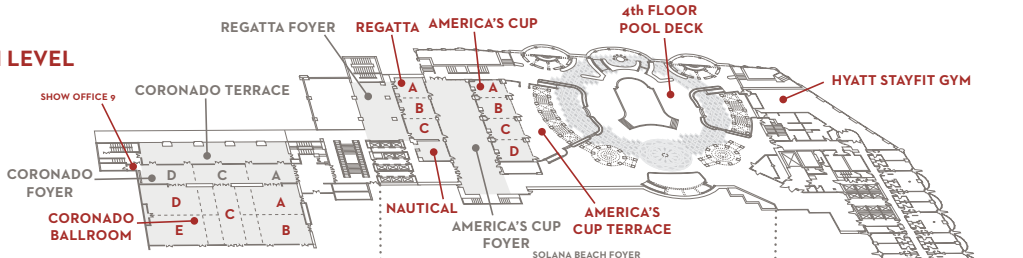

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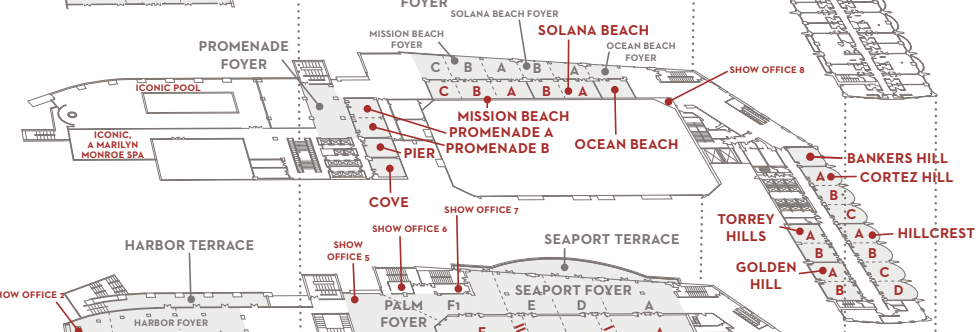

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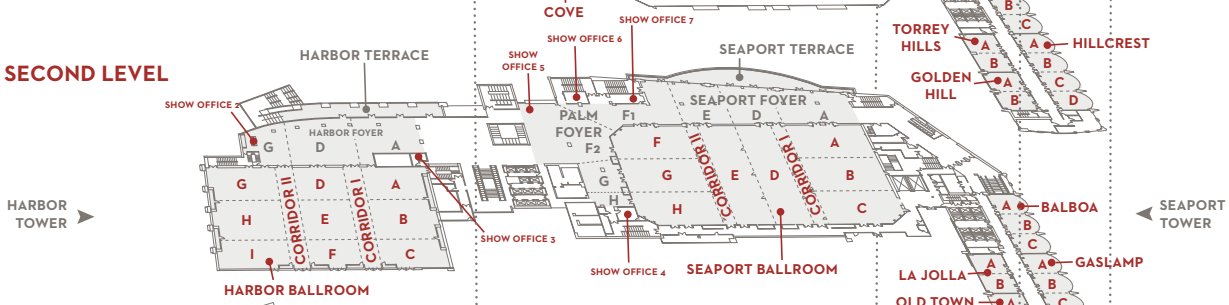

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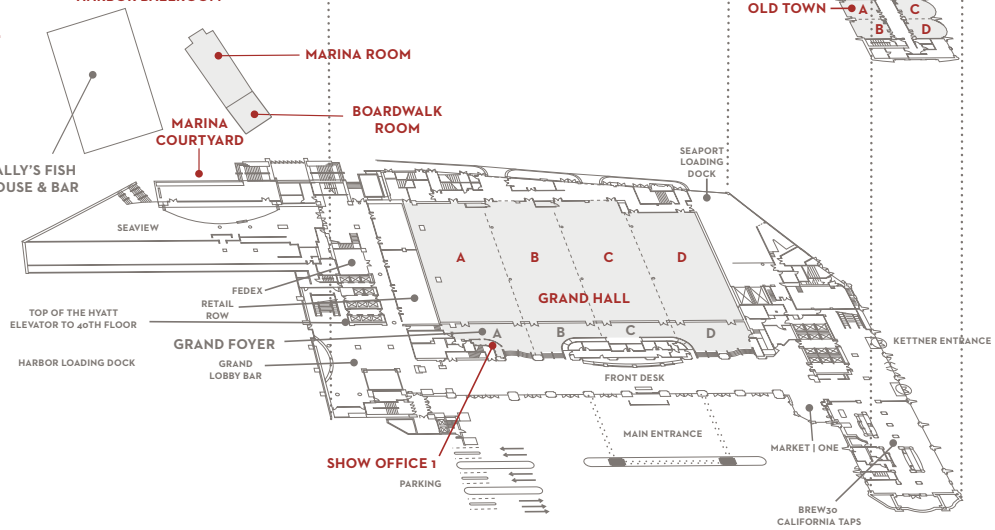

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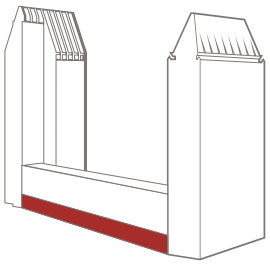

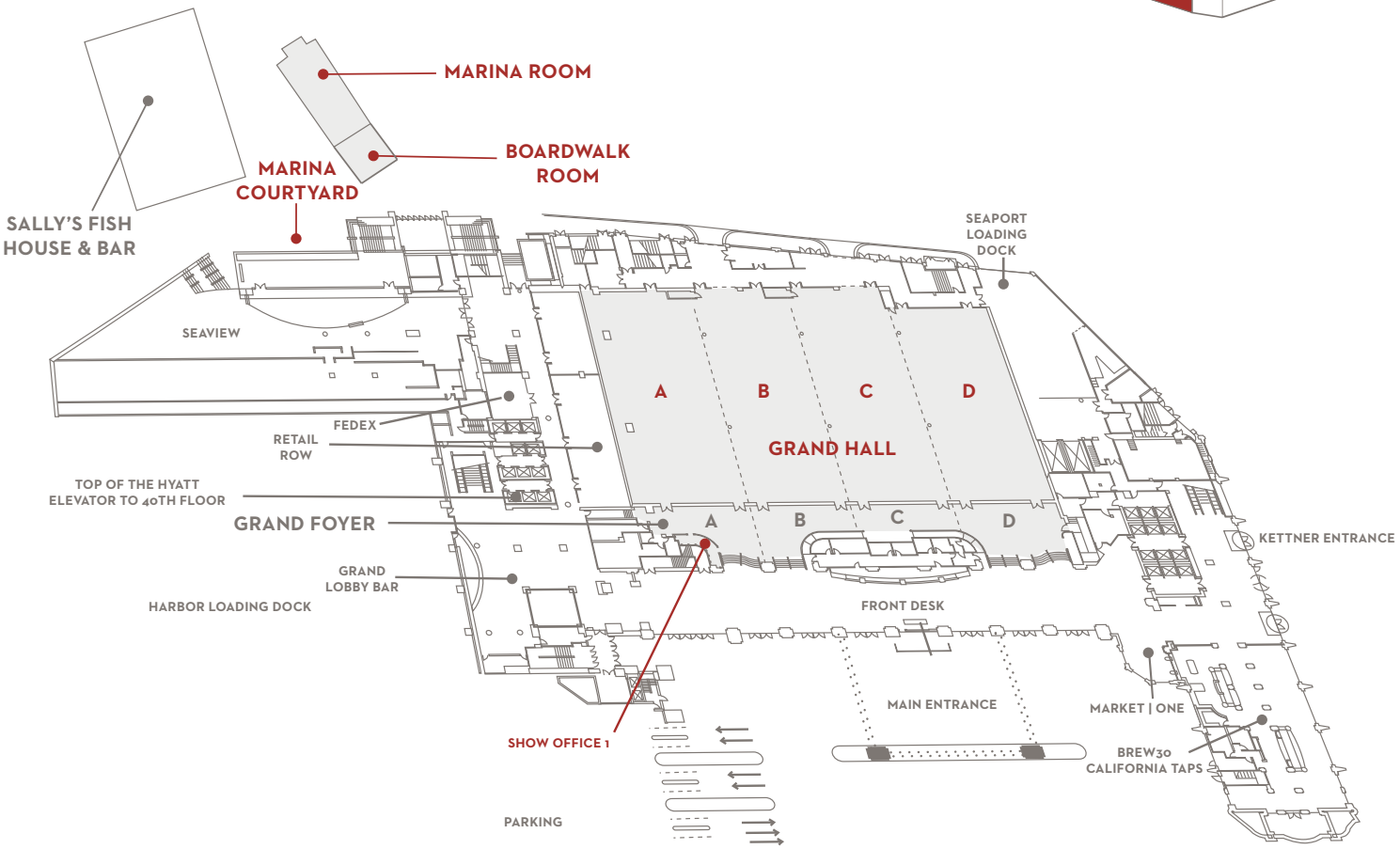

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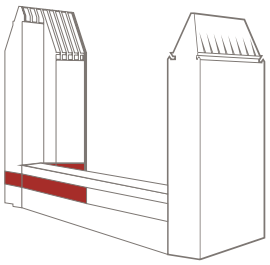

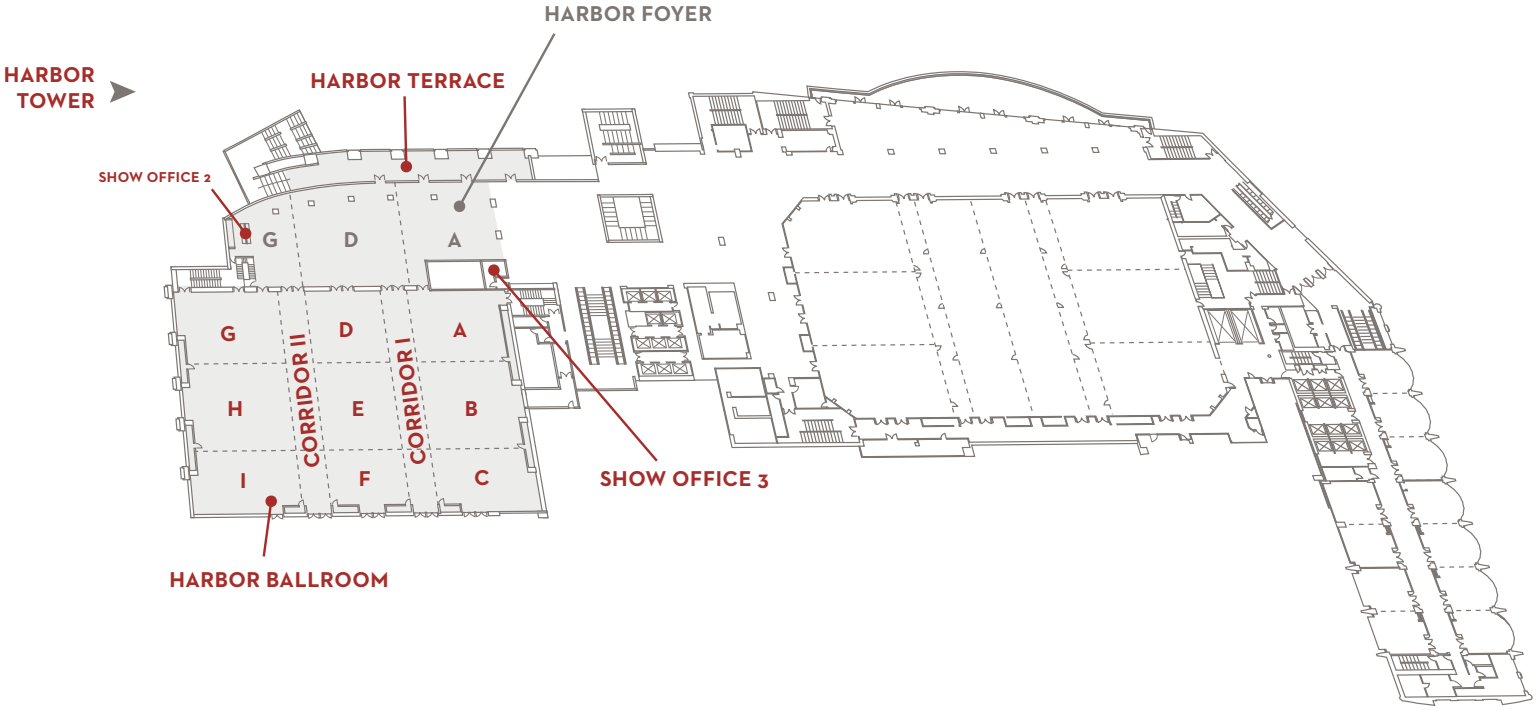

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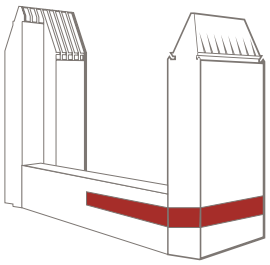

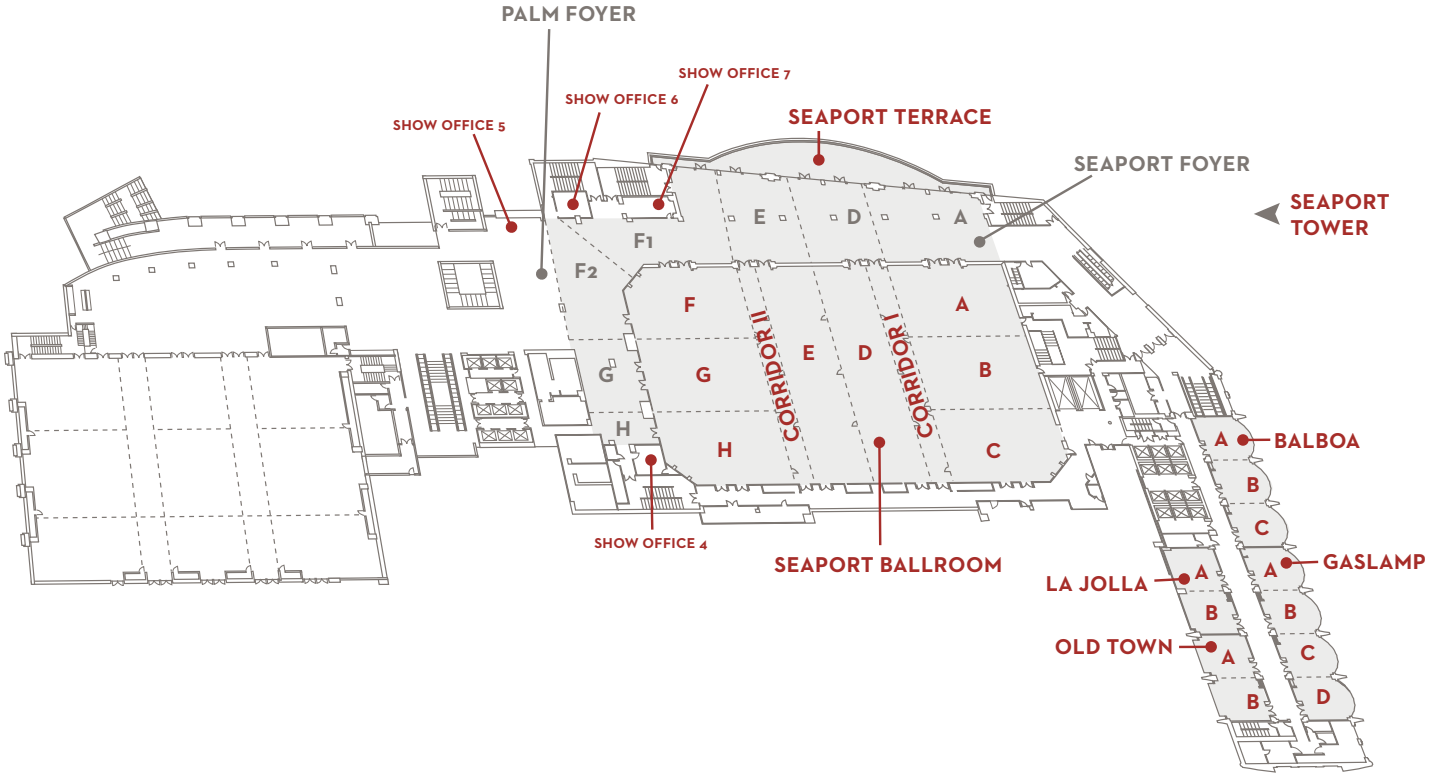

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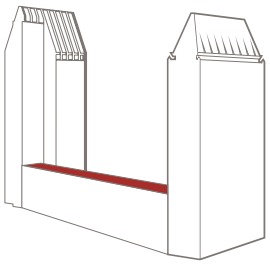

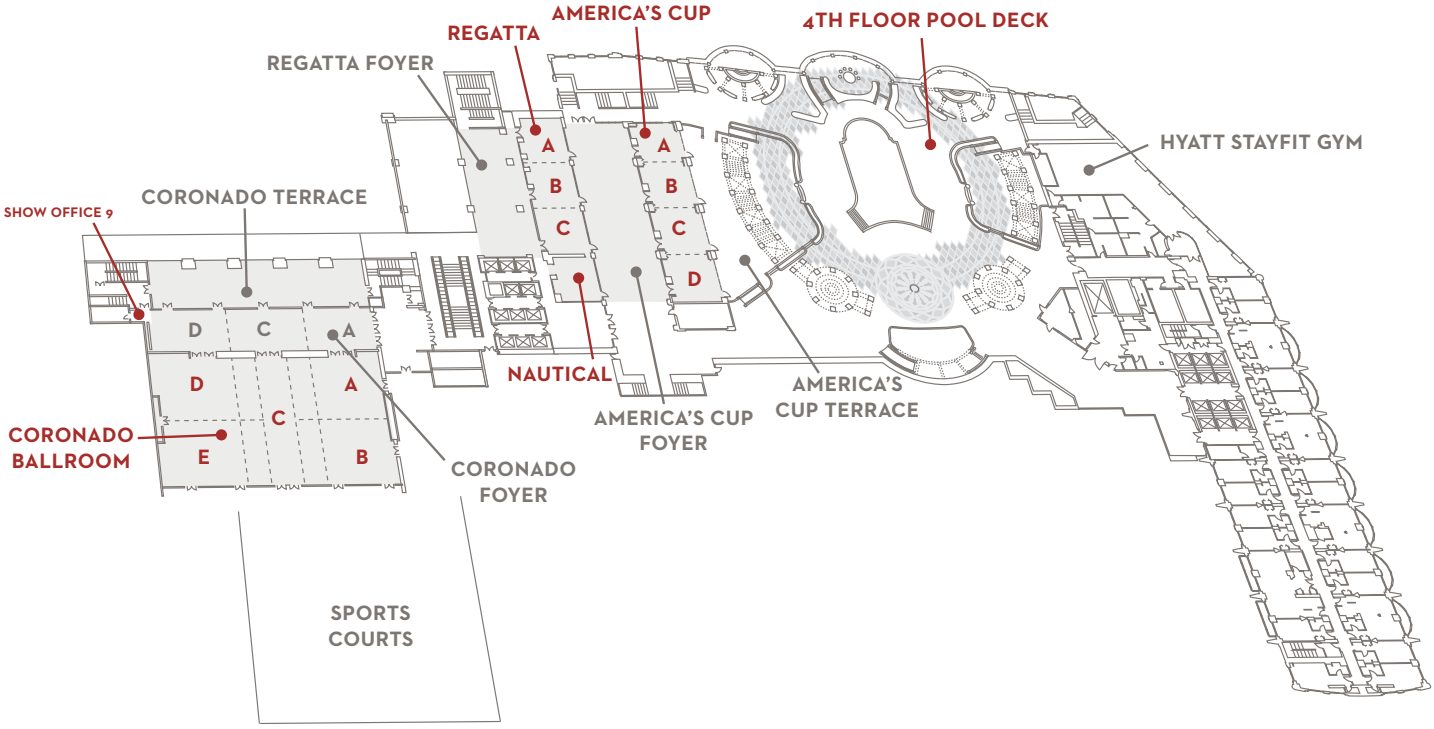

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