4th International Conference on
CATALYSIS AND CHEMICAL ENGINEERING

February 24-26, 2020

Venue
Four Points by Sheraton Los Angeles International Airport
9750 Airport Boulevard
Los Angeles, CA 90045, United States

Exhibitor
MEC Fuels & Chemicals

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CATALYSIS

Exhibition space and Sponsorship opportunities are available
Learn

CCE-2020 includes the most influential pioneers, speakers, keynotes, informative panels and some of the best networking you’ll find in the field of Catalysis and Chemical Engineering. The conference is unique in its approach of encouraging a dialogue between speakers and delegates through its well-planned agenda with the series of talks, poster presentations and networking events that will keep participants engaged in learning.

About the Organizer

International Conference on Fourth International Conference on Catalysis and Chemical Engineering (CCE-2020) is organized by United Scientific Group (USG), a nonprofit organization with tax-exempt status under Section of Internal Revenue Code 501(c)(3) of the United States of America.

USG has a history of successfully organizing and managing, scientific meetings, symposiums and panel discussions ranging from 50 to 350 participants, throughout the United States of America and internationally.

USG is led by a group of senior scientists as the board of directors, who are committed to work together and contribute their best services to the scientific community by supporting scientific meeting organization and open access content publication.

Our vision is to create various scientific networking platforms by organizing conferences to bridge the gap between research and business for the translation of scientific discoveries and innovative thoughts into implementable solutions and products which benefit humankind.

We believe in creating a platform where knowledge exchange and growth of scientific wisdom can take place by connecting and sharing valuable inputs and opinions of practitioners and academicians from across the globe. This will help address the rising scientific queries and provide solutions for a smarter and more advanced future.

Through the years, USG Conferences has hosted Nobel Laureates, National Academy Members, industry and academic stalwarts, innovators, and entrepreneurs, who interact with the audience through a talk and during the networking sessions.

Reasons to Attend CCE-2020

CCE-2020 includes the most influential pioneers, speakers, keynotes, informative panels and some of the best networking you’ll find in the field of Catalysis and Chemical Engineering. The conference is unique in its approach of encouraging a dialogue between speakers and delegates through its well-planned agenda with the series of talks, poster presentations and networking events that will keep participants engaged in learning.

CCE-2020 Scientific Topics

The conference is focused to deliver top notch scientific lectures in the fields chemical engineering, materials, nanotechnology, and energy. The subject areas may include, but are not limited to the following domains:

- Catalytic Materials & Mechanisms
- Catalysis for Chemical Synthesis
- Catalysis and Energy
- Physical Chemistry
- Catalysis in Oil and Gas
- Nanocatalysis
- Material Sciences
- Electrocatalysis
- Environmental Catalysis
- Chemical Kinetics
- Reaction Engineering
- Surface and Colloidal Phenomena
- Enzymes and Biocatalysts
- Photocatalysis
- Nanochemistry
- Polymer Engineering
- Fluid dynamics & its Phenomena
- Simulation & Modeling
- Catalysis for Renewable Sources
- Organometallics Chemistry
- Catalysis and Zeolites
- Industrial Catalysis
- Catalysis and Pyrolysis
- Quantum Chemistry

Organizing Committee

Jimmy C. Yu
The Chinese University of Hong Kong, China

James J. Spivey
Louisiana State University, LA

Zhifeng Ren
University of Houston, TX

Martin Schmal
Federal University of Rio De Janeiro, Brazil

Ephraim Suhir
Portland State University, Portland, OR

Jie Liu
Duke University, NC

C. N. R. Rao (Bharat Ratna, Padma Shri)
JNC for Advanced Scientific Research, Bangalore, India

Detlef Bahnemann
Leibniz University of Hanover, German

Kenneth M. Nicholas
University of Oklahoma, OK

Angela K. Wilson
Michigan State University, MI

Hua Chun Zeng
National University of Singapore, Singapore

Sibudjing Kawi
National University of Singapore, Singapore

Mannar Ram Maurya
Indian Institute of Technology Roorkee, India

Yu-Wen Chen
National Central University, Taiwan

Debasish Kuila
North Carolina A&T State University, NC

Oomman K. Varghese
University of Houston, TX

Jiaguo Yu
Wuhan University of Technology, China
## Conference at a Glance

<table>
<thead>
<tr>
<th>Time</th>
<th>Event Description</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Monday 24 February</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>06:00-06:45</td>
<td>Registrations</td>
<td></td>
</tr>
<tr>
<td>06:45-07:00</td>
<td>Opening Ceremony of CCE-2020</td>
<td></td>
</tr>
<tr>
<td>07:00-10:30</td>
<td>Plenary Session</td>
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<tr>
<td>10:40-11:00</td>
<td>Networking Break</td>
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<tr>
<td>11:00-13:00</td>
<td>Keynote Session</td>
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<tr>
<td>13:00-13:45</td>
<td>Networking Lunch</td>
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<tr>
<td>13:45-16:40</td>
<td>Keynote Session</td>
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<tr>
<td>16:40-17:00</td>
<td>Networking Break</td>
<td></td>
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<tr>
<td>17:00-19:30</td>
<td>Keynote Session</td>
<td></td>
</tr>
<tr>
<td><strong>Tuesday 25 February</strong></td>
<td></td>
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<tr>
<td>08:00-10:40</td>
<td>Technical Session 1 (Room-1)</td>
<td>Room-1</td>
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<tr>
<td>08:00-10:40</td>
<td>Technical Session 2 (Room-2)</td>
<td>Room-2</td>
</tr>
<tr>
<td>08:00-10:40</td>
<td>Technical Session 3 (Room-3)</td>
<td>Room-3</td>
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<tr>
<td>11:00-13:00</td>
<td>Technical Session 4 (Room-1)</td>
<td>Room-1</td>
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<tr>
<td>11:00-13:00</td>
<td>Technical Session 5 (Room-2)</td>
<td>Room-2</td>
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<tr>
<td>13:00-13:45</td>
<td>Networking Lunch</td>
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<tr>
<td>15:45-16:00</td>
<td>Networking Break</td>
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<tr>
<td>16:00-18:00</td>
<td>Technical Session 1 (Room-1)</td>
<td>Room-1</td>
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<td>16:00-18:00</td>
<td>Technical Session 2 (Room-2)</td>
<td>Room-2</td>
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<tr>
<td>16:00-18:00</td>
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<tr>
<td><strong>Wednesday 26 February</strong></td>
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<tr>
<td>08:00-10:40</td>
<td>Technical Session 4 (Room-1)</td>
<td>Room-1</td>
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<td>08:00-10:40</td>
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<td>Room-2</td>
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<td>Room-2</td>
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<tr>
<td>18:00-19:30</td>
<td>Poster Presentations &amp; Workshop</td>
<td></td>
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<tr>
<td>18:00-19:30</td>
<td>Closing Ceremony and Departures</td>
<td></td>
</tr>
</tbody>
</table>
Day 1 | February 24, 2020

Plenary Speakers

Gabor A. Somorjai, Ph.D
Professor of chemistry at the University of California, Berkeley, CA

*Wolf Prize in Chemistry, Father of Modern Surface Chemistry, National Medal of Science, Priestley Medal*

William Andrew Goddard III, Ph.D
Charles and Mary Ferkel Professor of Chemistry and Applied Physics, and Director, Materials and Process Simulation Center at the California Institute of Technology

*ISI Highly Cited Chemist, NASA Space Sciences Award*

James J. Spivey, Ph.D
J. M. Shivers and C.M. Eidt, Jr. Professor of Chemical Engineering at Louisiana State University, Baton Rouge, LA

*Editor-in-Chief of Catalysis Today, and Editor of the Royal Society of Chemistry’s Catalysis book series*

Jimmy C Yu
Choh-Ming Li Professor of Chemistry, The Chinese University of Hong Kong, Hong Kong

*Head, United College, CUHK*

Keynote Speakers

Craig L. Hill, Ph.D
Goodrich C. White Professor of Science at Emory University Atlanta, GA

*ACS Herty Medal Award, Nominator for 1992-present Nobel Prizes in Chemistry*

Debbie C. Crans, Ph.D
Professor of chemistry at Colorado State University, Fort Collins, CO

*CNS Professor Laureate award, Arthur C. Cope Scholar at the 250th National ACS meeting*

Martin Schmal, Ph.D
Professor at the Federal University of Rio de Janeiro, Brazil

*Humboldt Foundation Award*

Matthias Scheffler, Ph.D
Director of the Theory Department of the Fritz Haber Institute, Fritz Haber Institute, Germany

*Max Planck Research Award*

Zhifeng Ren, Ph.D
M.D. Anderson Chair Professor, Department of Physics, University of Houston, Houston, TX

*Editor-in-Chief of Materials Today Physics*

Ephraim Suhir, Ph.D
Research Professor Design & Manufacturing, Portland State University Portland, OR

*ASME Worcester Read Warner Medal*
Angela K. Wilson, Ph.D
John A. Hannah Distinguished Professor of Chemistry in the department of chemistry of Michigan State University, East Lansing, MI
Chemistry Division Director of the National Science Foundation, Michigan Women's Hall of Fame Award

Malgorzata Witko, Ph.D
Director of the Institute of Catalysis and Surface Chemistry, Polish Academy of Sciences, Poland
Vice President of EFCATS (European Federation on Catalysis)

Francisco Zaera, Ph.D
Distinguished Professor at University of California, Riverside, CA

Debasish Kuila, Ph.D
Professor of Chemistry, North Carolina A&T State University, Greensboro, NC

Jiaguo Yu, Ph.D
Research Professor at Wuhan University of Technology, Wuhan, China

Detlef Bahnemann, Ph.D
Head of the Research Unit Photocatalysis and Nanotechnology at the Institute of Technical Chemistry of the Leibniz University Hannover, Germany

Russell R Chianelli, Ph.D
Professor, Chemistry and Biochemistry - Environmental Science and Engineering - Materials Research and Technology Institute (MR & TI) - Border Biomedical Research Center (BBRC), The University of Texas at El Paso, El Paso, TX

Mannar Ram Maurya, Ph.D
Professor of Inorganic Chemistry Department of Chemistry, Dean of Indian Institute of Technology Roorkee, India

Sibudjing Kawi, Ph.D
Department of Chemical and Biomolecular Engineering, National University of Singapore, Singapore
Technical Session 1: Catalysis and Energy | Catalysis for Renewable Sources

Day 2 | February 25, 2020

Pulsed-Laser in Liquids Preparation of Clean-Energy Nanomaterials
Astrid M. Müller, University of Rochester, Rochester, NY

Barium-promoted Ruthenium Catalysts on Yttria-Stabilized Zirconia Supports for Ammonia Synthesis and Decomposition
Zhenyu Zhang, Colorado School of Mines, Golden, CO

Laser Ablation Synthesis in Solution-Galvanic Replacement Reaction (LASiSGRR): A facile route for synthesizing intermetallic nanoalloys and hybrid nanocomposites as efficient electrocatalysts
Dibyendu Mukherjee, University of Tennessee, Knoxville, TN

First Principles Evaluation on Catalysis of Oxygen Evolution and Fuel Production in an Artificial Photosynthesis System
Che-Wun Hong, National Tsing Hua University, Taiwan

Preparation of Ni-Zn-Co-S/3D porous Ni based electrode materials for supercapacitor applications using electrochemical analysis and X-ray spectroscopic technique
Han-Wei Chang, National United University, Taiwan

Dimethyl Ether Production by Catalytic Dehydration of Methanol using Metal-Transition Chalcogenides Supported on Silica-Aluminates Nanomaterials
Marco Antonio Alvarez Amparán, Centro de Nanociencia y Nanotecnología, Mexico

Robust Fused Aromatic Networks for Energy Applications
Jong-Beom Baek, UNIST, South Korea

First-Principles Study of Catalytic CO2/Water Decomposition on Layered Materials
Hong Seok Kang, Jeonju University, South Korea

In-situ Local Phase-Transitioned MoSe2 in Perovskite Oxide Heterostructure and Excellent Overall Water Electrolysis
Hyesung Park, Ulsan National Institute of Science and Technology, South Korea

Production Enhancement of Biodiesel via Sequential Esterification/Transesterification over Superacidic and Superbasic Catalysts
Kuen-Song Lin, Yuan Ze University, Taiwan

Modifying Fischer-Tropsch Reaction Sequence with Addition of Zeolite to Iron-based Activated-Carbon Supported Catalyst
Avinashkumar Karre, Worley, Baton Rouge, LA

Tandem Core-Shell Catalyst for CO2 Hydrogenation to Aromatics and Hydrocarbons
Wai Ming Hui, National University of Singapore, Singapore

Catalytic Oxidation of Benzothiophenes Using a Pyridinium Ionic Liquid
Yan Zhang, Memorial University of Newfoundland, Canada

Selective production of greener fuel from castor oil using a Fe-Pd-Ni trimetallic single atom alloy catalyst encapsulated in disordered worm like SiO2-TiO2 hybrid support via hydrodeoxygenation in hexane containing pressurized CO2
Saurav Bhattacharjee, National Tsing Hua University, Taiwan

Effects of CH4 and CO2 in the Syngas Feed Stream on the Catalytic Performance of Iron-Based Catalysts for Fischer-Tropsch Synthesis
Dong Hyun Chun, Korea Institute of Energy Research, South Korea

Oxidative Dehydrogenation Reaction of Propane: studying the role of magnesium vanadate species supported on an activated carbon surface
Fabiana Magalhães Teixeira Mendes, Instituto Nacional de Tecnologia - INT, Brazil

Phosphoric Acid Modified Al-TUD-1 Mesoporous Catalysts for the Hydrotreatment of FCC Diesel
Aijun Duan, China University of Petroleum-Beijing, China

Kinetic study of ethanol dehydrogenation to acetaldehyde catalyzed by mesocellular foam carbon as solid catalyst
Yoottapong Klinthongchai, Chulalongkorn University Bangkok, Thailand

Effect of Sr on catalytic properties of MgAlO catalyst in ethanol dehydrogenation
Patchaporn Seekhiaw, Chulalongkorn University, Bangkok, Thailand

Improved Catalytic Performance of Modified Nickel-Based Catalysts in Combined Steam and Dry Reforming of Methane (CSDRM)
Nichakorn Buasuk, Chulalongkorn University, Bangkok, Thailand

Enzyme as Powerful Biocatalyst for Precision Synthesis of Functional Polysaccharide Materials
Jun-Ichi Kadokawa, Kagoshima University, Japan

Reaction performances of esterification over structured catalyst with HZSM-5 zeolite coating based on SiC foam materials
Xin Gao, Tianjin University, China
<table>
<thead>
<tr>
<th>Technical Session 2 : Catalysis for Chemical Synthesis</th>
<th>Chemical Kinetics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cold, Silver, and Serendipity in Catalyst Development</td>
<td>Organolithium Chemistry Using Flow Microreactors and Its Applications to Palladium Catalyzed Crosscoupling</td>
</tr>
</tbody>
</table>
Anna G. Wenzel, Pitzer College, Claremont, CA | Aichiro Nagaki, Kyoto University, Japan |
Anderson Bonon, University of Campinas, Brazil | Thomas A. Manz, New Mexico State University, Las Cruces, NM |
| High activity and selectivity for direct conversion of syngas to light olefins over bifunctional catalyst | Computational mechanistic insights into deoxygenation reactions for biomass valorization |
Zhong Li, Taiyuan University of Technology, China | Olalla Nieto Faza, Universidade de Vigo, Spain |
Jingping Zhang, Northeast Normal University, China | Dong Hyun Chun, Korea Institute of Energy Research, South Korea |
| Improved Generations of Catalysts for the Preparation of Challenging High Value Chiral Compounds | Oxidative Dehydrogenation Reaction of Propane: studying the role of magnesium vanadate species supported on an activated carbon surface |
Montserrat Diéguez, Universitat Rovira i Virgili, Spain | Fabiana Magalhães Teixeira Mendes, Instituto Nacional de Tecnologia – INT, Brazil |
| Applications of Iridium Complexes with heterodonor carbene-based ligands in Catalysis. From Water Oxidation to Asymmetric Hydrogenation | Phosphoric Acid Modified Al-TUD-1 Mesoporous Catalysts for the Hydrotreatment of FCC Diesel |
Oscar Pàmies, Universitat Rovira i Virgili, Spain | Aijun Duan, China University of Petroleum-Beijing, China |
| Application of mixed molybdenum, vanadium, tungsten and copper oxides as catalysts in acrylic acid production | Kinetic study of ethanol dehydrogenation to acetaldehyde catalyzed by mesocellular foam carbon as solid catalyst |
Joao Guilherme Rocha Poco, FEI University, Brazil | Yootapong Klinthongchai, Chulalongkorn University Bangkok, Thailand |
| Preparation of WO3-based catalysts on silica and silica-alumina supports for propene self-metathesis | Effect of Sr on catalytic properties of MgAlO catalyst in ethanol dehydrogenation |
Nattaphon Hongrutai, Chulalongkorn University, Thailand | Patchaporn Seekhiaw, Chulalongkorn University, Bangkok, Thailand |
| Effect of oxygen concentration in the fuel combustion mix inside furnaces | Improved Catalytic Performance of Modified Nickel-Based Catalysts in Combined Steam and Dry Reforming of Methane (CSDRM) |
Freddy Jervis, Escuela Superior Politècnica del Litoral (ESPOL), Ecuador | Nichakorn Buasuk, Chulalongkorn University, Bangkok, Thailand |
| Silicon-Bridged Chromium Complex for Selective Ethylene Tri-/Tetramerization | Role of Organic Acids in Highly Efficient and Mild Regioselective C-H Arylation of Aromatic Compounds |
Tao Jiang, Tianjin University of Science and Technology, China | Guanghui An, Heilongjiang University, China |
Jonas Schlagintweit, Technische Universität München, Germany | Marcos Salazar, Université de Bourgogne, France |
Emmanuelle Despagnet-Ayoub, Los Angeles, CA | Jarrett A Riley, U.S. Department of Energy, Morgantown, WV |
<p>| | The modeling and simulation of SDS promoting CO2 hydrate formation in coal surface |
| | Hao Shu-qing, China University of Mining and Technology, China |</p>
<table>
<thead>
<tr>
<th>Title</th>
<th>Author(s)</th>
<th>Institution/Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>The effect of Lewis-acids on activity and stability of Iron tetra-NHC</td>
<td>Junying Wen</td>
<td>Renmin University of China, China</td>
</tr>
<tr>
<td>Photo-catalytic oxidation of gaseous toluene by Z-scheme Ag₃PO₄ -</td>
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<tr>
<td>g-C₃N₄ composites under visible light: Removal performance and</td>
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<td>mechanism</td>
<td></td>
<td></td>
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<tr>
<td>Visible-Light Water Oxidation by Polyoxometalate Complexed Metal-Oxide cores</td>
<td>Ira Alan Weinstock</td>
<td>Ben-Gurion University of the Negev, Israel</td>
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<tr>
<td>Mechanism of Metal-Metal Cooperation in Sonogashira Coupling:</td>
<td>Agusti Lledos</td>
<td>Universitat Autònoma de Barcelona, Spain</td>
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<tr>
<td>Learning from Highly Dynamic PdII-Cul Tetrametallic Assemblies</td>
<td></td>
<td></td>
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<tr>
<td>Molecularly Imprinted Nanoparticles as Artificial Enzymes for</td>
<td>Yan Zhao</td>
<td>Iowa State University, Ames, IA</td>
</tr>
<tr>
<td>Efficient and Selective Catalysis in Water</td>
<td></td>
<td></td>
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<tr>
<td>Advanced characterization of transition metals on TiO₂ nanoparticles</td>
<td>Djawhar Ferrah</td>
<td>University of California, Irvine, Irvine, CA</td>
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<tr>
<td>under catalytic reaction: the role of interface and subsurface oxygen in CO₂ and CO conversion</td>
<td></td>
<td></td>
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<td>Heterogeneous Nucleation of Aluminum on Al₃Ti Phases with</td>
<td>Yoshimi Watanabe</td>
<td>Nagoya Institute of Technology, Japan</td>
</tr>
<tr>
<td>Tetragonal D022 Structure and L12 Modified Structure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Synthesis of highly stable bacterial cellulosic pocket for drug</td>
<td>Narh Christopher</td>
<td>Jiangnan University, China</td>
</tr>
<tr>
<td>storage</td>
<td></td>
<td></td>
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<tr>
<td>Design of bimetal catalyst for VOC removal from industrial waste air</td>
<td>Natasa Novak Tusar</td>
<td>National Institute of Chemistry, Slovenia</td>
</tr>
<tr>
<td>Effect of cocatalyst combination on Ti-based Ziegler-Natta catalyst</td>
<td>Thanyaporn Pongchan</td>
<td>Chulalongkorn University, Thailand</td>
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<tr>
<td>in gas-phase ethylene polymerization</td>
<td></td>
<td></td>
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<tr>
<td>Quantitative mapping of carbon and metals on catalysts down to the</td>
<td>Lina Jolivet</td>
<td>IFP Energies nouvelles, France</td>
</tr>
<tr>
<td>ppm scale by Laser Induced Breakdown Spectroscopy (LIBS)</td>
<td></td>
<td></td>
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<tr>
<td>Hydrogenation of polyethylene terephthalate to environmentally</td>
<td>Avinash Lende</td>
<td>National Tsing Hua University, Taiwan</td>
</tr>
<tr>
<td>friendly products over a Vulcan XC-72 carbon supported mono and</td>
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<tr>
<td>bimetallic heterogeneous catalysts in greener reaction systems</td>
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<td>Synthesis of Hydrophobic Polymer Coatings via Initiated Chemical</td>
<td>Malancha Gupta</td>
<td>University of Southern California, Los Angeles, CA</td>
</tr>
<tr>
<td>Vapor Deposition</td>
<td></td>
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<tr>
<td>Development of Conductive Cotton for Energy Harvesting and</td>
<td>Sompit Wanwong</td>
<td>King Mongkut’s University of Technology Thonburi, Thailand</td>
</tr>
<tr>
<td>Photocatalytic Applications</td>
<td></td>
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<td>Preparation of Carbonaceous Ion-exchangers for Water Purification</td>
<td>Motoi Machida</td>
<td>Chiba University, Japan</td>
</tr>
<tr>
<td>Study of nitrous oxide adsorption by Zeolitic Imidazolate Framework (ZIF-8): Molecular Modeling and Computational Chemistry</td>
<td>Karen Villeges Dominguez</td>
<td>Université de Sherbrooke, Canada</td>
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<tr>
<td>Effect of solvation on the reactivity of Co₃O₄ (001) (001) surface:</td>
<td>Stephane Kenmoe</td>
<td>Universitaet Duisburg-Essen, Germany</td>
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<tr>
<td>Insights from Molecular dynamics simulations</td>
<td></td>
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<td>Ivan Santamaria-Holek</td>
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<tr>
<td>Synthetic chemistry: the quest for predictive simulations</td>
<td>Martin Jaraiz</td>
<td>University of Valladolid, Spain</td>
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<tr>
<td>Study on the reaction mechanisms for DME synthesis from syngas</td>
<td>Jongmin Park</td>
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<tr>
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<tr>
<td>Fundamental analysis of catalytic decomposition of sulfuric acid on</td>
<td>Seunghun Jung</td>
<td>Chonnam National University, South Korea</td>
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<tr>
<td>supported Pt/SiC</td>
<td></td>
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<tr>
<td>HCl emission minimization via. Unit operations and chemical reaction modification</td>
<td>Rahul Patil</td>
<td>Speciality Chemicals (MNC), USA</td>
</tr>
<tr>
<td>Selective mono-alkylbenzene disproportionation over silylated MFI zeolite</td>
<td>Tseng-Chang Tsai</td>
<td>National University of Kaohsiung, Taiwan</td>
</tr>
<tr>
<td>CO₂/CO Hydrogenation for the Production of Lighter Hydrocarbons</td>
<td>Hyun Dong Kim</td>
<td>KIST, South Korea</td>
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<td>Fundamental analysis of catalytic decomposition of sulfuric acid on</td>
<td>Seunghun Jung</td>
<td>Chonnam National University, South Korea</td>
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<td>supported Pt/SiC</td>
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<td>HCL emission minimization via. Unit operations and chemical reaction modification</td>
<td>Rahul Patil</td>
<td>Speciality Chemicals (MNC), USA</td>
</tr>
<tr>
<td>Selective mono-alkylbenzene disproportionation over silylated MFI zeolite</td>
<td>Tseng-Chang Tsai</td>
<td>National University of Kaohsiung, Taiwan</td>
</tr>
<tr>
<td>CO₂/CO Hydrogenation for the Production of Lighter Hydrocarbons</td>
<td>Hyun Dong Kim</td>
<td>KIST, South Korea</td>
</tr>
</tbody>
</table>
Low cost advanced hydrogen production platform for on-site hydrogen supply  
Wang Lai Yoon, Korea Inst. Energy Research (KIER), South Korea

The comparison of Cu/CeO₂ catalyst using different precipitants for low temperature water gas shift reaction  
Yun-Jung Gu, Changwon National University, South Korea

A comparative study of support oxide over Ni based catalysts for dry reforming of methane  
Ju-Hwan Kim, Changwon National University, South Korea

PtA-(HₓMoO₃)B CO-tolerant anode catalysts for PEMFCs  
Kirill Kurdin, Skolkovo Institute of Science and Technology, Russia

Effects of chiral modifiers and hydrogen pressure on enantioselective hydrogenation of ethyl pyruvate over Pt supported on mesoporous silica foam  
Byeongju Song, Pohang University of Science and Technology (POSTECH), South Korea

Use of Nb2O5.nH₂O and Nb2O5/Al₂O₅ as acids catalysts for the dehydration of xylose to furfural  
Leticia Franco de Lima, University of Campinas, Brazil

The Molecular Characteristics on the Deep HDS and HDN over Alumina and SilicaAlumina Supported Metal Catalysts  
Joo-II Park, Hanbat National University, South Korea

Environment-friendly catalyst for simultaneous removal of nitrogen oxides and mercury  
Qijie Jin, Nanjing Tech University, China

Synthesis of silver nanoparticles on an activated carbon obtained from sugarcane straw  
Fabiana Magalhães Teixeira Mendes, Instituto Nacional de Tecnologia – INT, Brazil

Preparation and Characterization of Ni/Al₂O₃ for Carbon Nanofiber Production from CO₂ Hydrogenation  
Kuen-Song Lin, Yuan Ze University, Taiwan

Facile synthesis and characterization of Ag(NP)/TiO₂ Nanocomposite: Photocatalytic efficiency of catalyst for oxidative removal of Alizarin Yellow  
Seung-Mok, Catholic Kwandong University, South Korea

Removal of Antibiotic Cephalixin using Solar Photo-Fenton  
Henry Zuniga-Benitez, Universidad de Antioquia UdeA, Colombia

Removal of Nitrate and Nitrite Contaminants in Wastewater over NiFe2O4 and ZnFe2O₃ Nanoparticles  
Ndumiso Vukile Mdlovu, Yuan Ze University, Taiwan

P-doped Ni-Fe-S Nanoflowers as a Highly Efficient Electrocatalyst for Oxygen Evolution Reaction  
Sangjin Kim, Inha University, South Korea

In Situ Growth of Nickel-Based Sulfide Nanoneedles on Nickel Foam as a Highly Efficient Bifunctional Electrocatalyst for Oxygen and Hydrogen Evolution Reaction  
Dongwook Lim, Inha University, South Korea

Synthesis of CeO₂-ZrO₂ nanosheets and their enhanced catalytic activity in diesel soot oxidation  
Zhengzheng Yang, China West Normal University, China

Corrosion protection of Mg based alloy in neutral sodium chloride  
Mohammad Bin Sabt, Kuwait University, Kuwait

Al thin film: The role of substrate on film formation and morphology  
Moojin Kim, Jungwon University, South Korea

The Influence of Air and its Main Components on the Surface Tension of Mercury  
Boris Alchagirov, Kabardino-Balkarian State University named after H.M. Berbekov", Russia

Water-Soluble, Disulfonated alpha-Diimine Rhodium(I) Complexes: Synthesis, Characterisation and Application as Catalyst Precursors in the Hydroformylation of 1-Octene  
Nikolchukwu Omosun, University of Cape Town, South Africa

Backbone modified macrocyclic tetra-NHC iron complexes applied in epoxidation catalysis  
Marco Bernd, Technische Universität München, Germany

Surface Tension of the Eutectic Alloy PbBi Coolant for GEN-IV in Nitrogen, Oxygen, Atmospheres of Air and in Vacuum  
Boris Alchagirov, Kabardino-Balkarian State University named after H.M. Berbekov, Russia

Strain Engineering in Band Evolution of Two-Dimensional Black Phosphorus/MoS₂ van der Waals Heterojunction  
Gang Ouyang, Hunan Normal University, China

Study of a novelty hydroxyapatite/g-C₃N₄ hybrid material as a high performance photocatalyst  
Angeles Mantilla, Instituto Politécnico Nacional, CICATA Legaria, Mexico

Cis-labile Iron NHC Complexes in Oxidation Catalysis  
Florian Dyckhoff, Technical University Munich, Germany

The effect of particle sizes on the concentration dependence of the surface tension of aqueous suspensions of bentonite  
Boris Alchagirov, Kabardino-Balkarian State University named after H.M. Berbekov, Russia

Analysis of parameters affecting electroplating in educational process  
Peter Vitrič, University of Maribor, Slovenia

CoFe₂O₄/[Ni(OH)]₂ Heterojunctioned Composite as an Advanced Electrocatalyst for Oxygen Evolution Reaction  
Minsoo Kim, Inha University, South Korea

MOF-Derived Zinc Cobalt Sulfides on N, S Co-Doped Carbon as a Highly Efficient Electrocatalyst for Oxygen Reduction Reaction  
Minji Hwang, Inha University, South Korea

Boron ion doping of Metal-doped hematite by a surface treatment for enhanced photoelectrochemical water splitting  
Hyo-Jin Ahn, German Engineering Research and Development Center LSTME Busan Branch, South Korea
Technical Session 4: Photocatalysis | Electrocatalysis

Valorisation of Biomass by Hydrothermal transformation and photocatalysis
Guillard, University of Lyon, France

Modification of Polymeric C$_3$N$_4$ to Achieve Broadened Optical Absorption, Reduced Charge Recombination and Enhanced Photocatalytic Hydrogen Evolution
Xiaoming Fang, South China University of Technology, China

Photocatalysis of Plasmon Resonant Nanostructures and Two-Dimensional Materials
Stephen B Cronin, University of Southern California, Los Angeles, CA

Hot Electron Driven Photocatalysis on Plasmon-resonant Grating Nanostructures
Yu Wang, University of Southern California, Los Angeles, CA

Photocatalytic behaviour of B-site modified photoferroic Fe-doped barium titanate nanoparticles
Ifeanyichukwu Amaechi, Institut National de la Recherche Scientifique, Canada

1D TiO$_2$ Nanotube Layers Decorated by Atomic Layer Deposition: Efficient Photocatalyst
Martin Motola, University of Pardubice, Czech Republic

Photoredox Catalysts for Direct Phenol Production from Benzene
Kei Ohkubo, Osaka University, Japan

Photoassisted degradation of Rhodamine B and Caffeine by synthesis of ZnO/hydroxyapatite nanoparticles
Kherbeche Abdelhak, Sidi Mohamed Ben Abdellah University, Morocco

Hydrogen Evolution by Photocatalytic Splitting of Water Using SrTiO$_3$/PAN Based Fibers
Gulmira Yar-Mukhamedova, Al-Farabi Kazakh National University, Kazakhstan

Synthesis and photocatalytic performance of core/shell structure rutile@anatase TiO$_2$ nanofibers
Ming-Chung Wu, Chang Gung University, Taiwan

Cellulose nanofiber/titanium dioxide nanowire film for reusable organic pollutant photodegradation
Yin-Hsuan Chang, Chang Gung University, Taiwan

Construction of 2D/1D g-C$_3$N$_4$/TiO$_2$ with Z-Scheme Heterostructure for Efficient Water Splitting
Ting-Han Lin, Chang Gung University, Taiwan

Shifting in Degradation Pathway by Controlling Exposing Surface of Photocatalyst: Degradation of Herbicide Diuron on Zinc Oxide
Varong Pavarajarn, Chulalongkorn University, Thailand

From hydrogen production to its utilization: Developing electrocatalysts for water splitting and hydrogenation reactions
Bin Hua, Idaho National Laboratory, Idaho Falls, ID

Constructing heterostructured nanocatalysts for solid state CO$_2$ electrolyzer
Meng Li, Idaho National Laboratory, Idaho Falls, ID

Enhanced electrochemical hydrogenation of biomass derived organic compounds
Mal-Soon Lee, Pacific Northwest National Laboratory, Richland, WA

Selective Reduction of CO$_2$ to CO at Room Temperature by Co-N$_4$-Cx Electrocatalyst
Ichiro Yamanaka, Tokyo Institute of Technology, Japan

Engineering precious metal-free catalyst interfaces by electrografting for energy applications
Loïc Assaud, Université Paris-Sud / Université Paris-Saclay, France

Fabrication of transition metal chalcogenides alloys for efficient water splitting electrodes with a wide pH range of electrolyte
Inhwan Oh, Inha University, South Korea

Improvement of electrocatalytic activities and corrosion resistance by carbon materials for efficient hydrogen evolution reaction: Graphene, CNT and carbon substrates
Ki-Joon Jeon, Inha University, South Korea

Formulation and Characterization of W-doped Titania Nanotube for Adsorption/Photocatalysis of Methylene Blue and Basic Violet 3 Dyes
Ndumiso Vukile Mdlovu, Yuan Ze University, Taiwan
Self-Organizing Ni-M catalysts for Processing of Halogenated Hydrocarbons into Functionalized Carbon Nanofibers
Ilya Mishakov, Boreskov Institute of Catalysis, Russia

Magnesium oxide enhancement of the catalytic performance of nickel supported on gamma-alumina doped with silica in dry reforming of methane
Abdelaziz Bagabas, National Petrochemical Technology Center (NPTC), Saudi Arabia

Roles of oxygen defects of (WO3,V2O5)/SBA-15 catalysts in the oxidative desulfurization of fuel
Jin An Wang, ESIQIE, Instituto Politécnico Nacional, Mexico

Magnetic core-shell nitrogen-doped carbon-supported Co3O4 as a highly-reactive nanoreactor for the catalytic degradation of bisphenol A
Liu Fuqiang, Nanjing University, China

Influence of silicon coordination environment on the catalytic properties of one-pot-synthesized Cu-SAPO-18
Zhen Chen, Huazhong University of Science and Technology, China

Heterogeneous Photocatalysis and Photo-Fenton Technologies as Alternatives for UV-Filters Removal
Henry Zuniga-Benitez, Universidad de Antioquia UdeA, Colombia

Liquid phase catalytic oxidation of cyclohexane using advanced oxidation process
VSR Rajasekhar Pullabhotla, University of Zululand, South Africa

Integration of Nanoscale Gold into Polymer Particles for a Highly Selective and Reactive Quasi-Homogeneous Catalyst
Hongsik Byun, Keimyung University, South Korea

Precursor influence on flame made Hopcalite nanoparticles for low-temperature CO oxidation under humid conditions
Julia Grothe, Technische Universitat Dresden, Germany

Catalytic surfaces under reaction conditions observed by in-situ synchrotron technique
Yan-Gu Lin, National Synchrotron Radiation Research Center, Taiwan

DTPA Capped Superparamagnetic Iron Oxide Supported Magnetically Retrievable Pd and Ni catalysts for Suzuki Coupling Reactions
Padmaja Sudhakar Pamidimukkala, The Maharaja Sayajirao University of Baroda, India

Novel Hybrid Nanozyme-Catalysts for Ferroptosis-induced Cancer Therapy based on Polysaccharide-Enzyme-Magnetic Iron Oxide Nanostructures
Herman S. Mansur, Universidade Federal de Minas Gerais - UFMG, Brazil

Syngas production from hydrocarbons on Ni-based catalysts: Strategy to enhance thermal stability of Ni nanoparticles
Jong Wook Bae, Sungkyunkwan University (SKKU), South Korea

Gold Nanoparticles Supported on Metal Oxide Based Nanotubes for the Catalytic Reduction of Nitroarenes
Shanmugaraj, Universidad de Concepción, Chile

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