UNITED Scientific Group

Advances and Challenges in Applied Catalysis

Exhibitor

IntraMicron Inc. USA

INTERNATIONAL CONFERENCE ON

CATALYSIS AND CHEMICAL ENGINEERING

FEBRUARY 22-24, 2017

Venue

The DoubleTree by Hilton Baltimore
BWI Airport
Baltimore, MD, USA

Day-1 February 22, 2017

08:00-8:25 Registrations & Introduction to CCE-2017

Keynote Presentations — Annapolis / Harbor Room

08:25-09:00 **Kinetics of Photocatalytic, Self-Cleaning Surfaces: Connecting Contaminant Removal to Contact Angle Evolution**
David Ollis, North Carolina State University, NC, USA

09:00-09:35 **Barriers on the Way Back: Energy Issues in the Utilization of CO_2 in the Synthesis of Chemicals and Fuels**
Michele Aresta, University of Bath, UK

09:35-10:10 **Oxo-Metal Catalyzed Deoxygenation of Alcohols and Polyols**
Kenneth M Nicholas, University of Oklahoma, OK, USA

10:10-10:45 **Calcium Phosphates versus Conventional Catalysts: Case Study of Dry Reforming of Methane**
Ange Nzihou, Université de Toulouse, France

10:45-11:00 Coffee Break — Main Hallway

Technical Session-1 Catalytic Materials — Annapolis / Harbor Room

Session Chairs: Julia Hsu, University of Texas at Dallas, TX, USA; Ge Wang, University of Science and Technology Beijing, China

11:00-11:20 **Exploring Pd Adsorption, Diffusion, Permeation, and Nucleation on Bilayer SiO_2/Ru as a Function of Hydroxylation and Precursor Environment: From UHV to Catalyst Preparation**
William E Kaden, University of Central Florida, FL, USA

11:20-11:40 **A Mn_2O_5 Mullite Type Oxides as NO Oxidation Catalyst**
Julia Hsu, University of Texas at Dallas, TX, USA

11:40-12:00 **Selective Catalytic Oxidation of H_2S Over Calcium Carbonate-Based Solid Residues as Low Cost and Highly-Performing Catalysts**
Doan Pham Minh, Université de Toulouse, France

12:00-12:20 **Nickel Supported Catalyst Prepared from Mixed Oxides as Catalysts for Heterogeneous D-xylose Hydrogenation**
Gina Pecchi, University of Concepción, Chile

12:20-12:40 **Development of Gold Nanoparticulates Catalyst Deposited on Metal Oxides Synthesized by Hydrothermal Process**
Toru Murayama, Tokyo Metoropolitan University, Japan

12:40-13:00 **Hydrogenation of CO_2 to Fuels (CO and CH_3OH) on Metal-Oxide Catalysts**
Shyam Kattel, Brookhaven National Laboratory, NY, USA

13:00-13:20 **Development of Smart Ni based Nano-oxyhydrides for Hydrogen Production**
Louise Jalowiecki-Duhamel, Lille University of Science and Technology, France

13:20-14:05 Lunch Break — Pre Registration Area

14:05-14:25 **High Surface Area Microporous Carbons as Photoreactors for the Catalytic Photodegradation of Methylene Blue under UV-Vis Irradiation**
Juan Matos, University of Concepcion, Chile

14:25-14:45 **Prickly Structure Rethinks Catalyst Supports**
Ge Wang, University of Science and Technology Beijing, China

14:45-15:05 **Valorization of Oxygenated Compounds Present in Biomass-derived Aqueous Fractions into Valuable Products Using Transition Metal Oxides as Catalysts**
Marcelo E Domine, Universidad Politécnica de Valencia, Spain

15:05-15:25 **Self-Template Encapsulation of Magnetic AuCo by Co(II)-Zeolitic Imidazolate Frameworks for Size-Selective Photocatalysis**
Bo Yu, Tianjin University, China

15:25-15:45 **Ultrastable Plasmonic Photocatalysis Using Polymer-Capped Silver Nanoparticles**
Sammy Verbruggen, University of Antwerp - Sustainable Energy, Air & Water Technology, Belgium

15:45-16:05 **Synthesis Characterization and Shaping of Fe Containing Lanthanum Silicate Apatites and their Catalytic Characterisation**
Vassilis Stathopoulos, Technological Educational Institute of Sterea Ellada, Greece

16:05-16:20 Coffee Break Main Hallway

16:20-16:40 **Comparison Between Recovery of Phase Transfer Catalysts from Waste Water by Adsorption by Zeoloite A and Barite**
Noura Elmehbad, Najran University, Saudi Arabia

16:40-17:00 **Recent Advances Towards Scaled-up Preparation of Al/Fe-PILC Clay Catalysts: Potential Application in CWPO Oxidation to Improve Drinking Water Quality**
Luis-Alejandro Galeano, Universidad de Nariño, Colombia

17:00-17:20 **Valorization of Chloromethanes by Hydrodechlorination with Metallic Catalysts**
Luisa Maria Gomez Sainero, Universidad Autónoma de Madrid, Spain

17:20-17:35 **Improving the Catalytic Properties of the (La,Sr)(Cr,M)O_3 (M=Mn,Fe) Perovskites by *in-situ* Nanocatalyst Exsolution for the Fuel Oxidation Layer of Oxygen Transport Membranes**
Despoina Papargyriou, University of St Andrews, UK

17:35-17:50 **Highly Efficient, Stable and Controllable Multi-Core, Rattle-Type Ag@Silica Catalyst for the Reduction of 4-Nitrophenol**
Jie Hou, Tianjin University, China

17:50-18:05 **Compositional Gradient and Corner Enrichment of Pt in Pt/Pd Bimetallic Nanoparticles**
Lingxuan Peng, Northwestern University, IL, USA

18:05-18:20 **Further Surface Analysis of Boron Modified NiMo/Y-Al_2O_3 Catalysts: Correlation of the Surface Chemical State with their Performance in HDS and HDA Reactions**
Liseth J Duarte Correa, Universidad Industrial de Santander, Colombia

18:30-19:30 ***Welcome Reception***

Technical Session-2 *Catalysis for Chemical Synthesis* *Johns Hopkins Room*

Session Chairs **Martin G Bakker, The University of Alabama, AL, USA**
Joshua D Sieber, Boehringer Ingelheim Pharmaceuticals, Inc., CT, USA

11:00-11:20 **Catalysis by Nanocast Hierarchically Porous Monolithic Materials**
Martin G Bakker, The University of Alabama, AL, USA

11:20-11:40 **Organolithium Chemistry Using Flow Microreactors and its Applications to Palladium Catalyzed Crosscoupling**
Aiichiro Nagaki, Kyoto University, Japan

11:40-12:00 **Tunable, Privileged P-Chiral Dihydrobenzooxaphosphole-Based Ligands for Application to Asymmetric Catalysis for the Scalable Synthesis of Pharmaceutically Relevant Compounds**
Joshua D Sieber, Boehringer Ingelheim Pharmaceuticals, Inc., CT, USA

12:00-12:20 **The Nature of Heterogeneous Palladium Catalyzed Cross-Coupling Reactions on Novel Carbon Support Systems**
B Frank Gupton, Virginia Commonwealth University, VA, USA

12:20-12:40 **Electrochemical Mineralization of Synthetic Human Urine and Simultaneous H_2 Generation from an Electrolysis Cell Containing a Ni(II)Cyclam-Modified Nanoparticulate TiO_2 Anode and a Pt Cathode**
Juan Manríquez, Centro de Investigación y Desarrollo Tecnológico en Electroquímica, S. C, México

12:40-13:00 **Supported Cobalt-Molybdenum Oxide Catalysts for the Selective Oxidation of Cyclohexane**
Akkihebbal K Suresh, Indian Institute of Technology Bombay, India

13:00-13:20 **Intensifying Homogeneous Catalysed Reactions with Fatty Compounds**
Andreas J Vorholt, Institute Technsiche Chemie, Germany

13:20-14:05 Lunch Break **Pre Registration Area**

14:05-14:25 **Challenge of Environment Friendly Catalyst for High Efficient Synthesis of CO_2 Copolymer**
Xianhong Wang, Changchun Institute of Applied Chemistry(CIAC), China

14:25-14:45 **Triflic Acid Functionalized Mesoporous Materials for Conversion of Fructose to Platform Chemicals**
Pranjal Kalita, The Energy and Resources Institute, India

14:45-15:05 **Nano-Gold Catalyst for Non-Hg Catalysis Acetylene Hydrochlorination Process in Chinese Coal-Based PVC Industry: Catalysts Design and a Pilot Tube Reactor Evaluation**
Guohua Luo, Tsinghua University, China

15:05-15:25 **High-Density Monolayers of Metal Complex for Catalytic Application**
Kenji Hara, Tokyo University of Technology, Japan

15:25-15:45 **Asymmetric Hydrogenation of Ketones Directed Towards Chiral Intermediates of Pharmaceutical Interests**
Zhaoguo Zhang, Shanghai Jiao Tong University, China

15:45-16:05 **A Pd/CeO_2 "H_2 Pump" for the Direct Amination of Alcohols**
Marc Pera-Titus, E2P2L UMI 3464 CNRS/Solvay, China

16:05-16:20 **Coffee Break** **Main Hallway**

16:20-16:40 **Preparation of IrO_2-Ta_2O_5½Ti Electrodes by Immersion, Painting and Electrophoretic Deposition for the Electrochemical Removal of Hydrocarbons from Water**
Erika Bustos, Centro de Investigación y Desarrollo Tecnológico en Electroquímica, S. C, Mexico

16:40-17:00 **Green Synthesis of Benzyl Acetate by Gas Phase Acetoxylation Using Pd Based Catalysts**
V Narayana Kalevaru, Leibniz Institute for Catalysis, Germany

17:00-17:20 **One-Pot Solvothermal Synthesis of Bimetallic PtMn and Trimetallic PtMnFe Nanocatalysts with Enhanced Activity and Selectivity for Biomass Conversion**
Honghong Shi, University of Kansas, KS, USA

17:20-17:40 **Impact of Soot on NH_3-SCR, NH_3 Oxidation and NH_3 TPD Over Cu/SSZ-13 Zeolite**
Lidija V Trandafilovic, Chalmers University of Technology, Sweden

17:40-18:00 **Preparation, Characterization and Application of Multiphase Capillary Photo-Reactors**
Reyna Natividad, Centro de Investigación en Química Sustentable UAEM-UNAM, México

18:00-18:15 **Transesterification of Propylene Carbonate with Methanol to Dimethyl Carbonate using Supported Alkali Metal Oxides Catalysts**
Ziwei Song, University of Kansas, KS, USA

18:15-18:30 **Sulfonic Acid Functionalized Silica Nanoparticles as Catalysts in the Esterification of Free Fatty Acids**
Andreia F Peixoto, Universidade do Porto, Portugal

18:30-19:30 ***Welcome Reception***

Day-2 February 23, 2017

Keynote Presentations — Annapolis Room

08:25-09:00 **Biocatalytic Based Mechanisms for Enabling Enzyme-Like Nanocatalysis**
Michael J Heller, University of California San Diego, CA, USA

09:00-09:35 **Functional Nanomaterials: Potential and Promise in Catalysis and Gas Sensing**
M Ishaque Khan, Illinois Institute of Technology, IL, USA

09:35-10:10 **Catalysis by Design: Well-defined Single-site Heterogeneous Catalysts via Surface Organometallic Chemistry**
Jean-Marie Basset, King Abdullah University of Science and Technology, Saudi Arabia

10:10-10:45 **Alloying and Structuring in Nanocatalysts**
Chuan-Jian Zhong, State University of New York at Binghamton, NY, USA

10:45-11:00 Coffee Break — Main Hallway

Technical Session-3 Catalysis and Energy — Annapolis Room

Session Chairs: Jimmy C Yu, The Chinese University of Hong Kong, China; Chuan-Jian Zhong, State University of New York, NY, USA

11:00-11:20 **Facile Synthesis of Carbon- and Oxygen-Rich Graphitic Carbon Nitride With Enhanced Visible-Light Photocatalytic Activity**
Jimmy C Yu, The Chinese University of Hong Kong, China

11:20-11:40 **Natural Gas Upgrading Towards Value-Added Chemicals**
John Hu, West Virginia University, WV, USA

11:40-12:00 **Carbon Aerogel Supported Platinum-Copper Nanoalloys Using Supercritical Deposition as Electrocatalysts for PEM Fuel Cells**
Can Erkey, Koç University, Turkey

12:00-12:20 **CO_2 Reduction and Water Oxidation by New Semiconductor Photocatalysts**
Kazuhiko Maeda, Tokyo Institute of Technology, Japan

12:20-12:40 **Rational Design of 2-D Photocatalysts for Solar Fuel Synthesis**
Junwang Tang, University College London, UK

12:40-13:00 **Development of Novel Heterogeneous Catalysts for the Production of Green Diesel**
Palligarnai T Vasudevan, University of New Hampshire, NH, USA

13:00-13:20 **Effect of Mesoporous Catalyst-Supports and Metals on Hydrogen Production via Steam Reforming of Alcohols**
D Kuila, North Carolina A&T State University, NC, USA

13:20-14:05 Lunch Break — Pre Registration Area

14:05-14:25 **Oxidative Desulfurization for Resources With High Sulfur Contents**
Hongyun Yang, IntraMicron Inc., AL, USA

14:25-14:45 **Upgrading of Pyrolysis Bio-Oil Using Pd/C and BioPd/C Catalysts**
Iain Kings, University of Birmingham, UK

14:45-15:05 **Ceria Encapsulated Rh Nanocatalysts for Steam Reforming of Polyalcohol in Microreactors**
Vetrivel Shanmugam, Eindhoven University of Technology, The Netherlands

15:05-15:25 **Fine-Tuning of Metal-Carbon Catalysts: Learning from Natural Catalysts**
Xuezhi Duan, East China University of Science and Technology, China

15:25-15:45 **Photocatalytic Conversion of CO_2 by H_2O as an Electron Donor Using All-Solid State Photocatalysts**
Kentaro Teramura, Kyoto University, Japan

15:45-16:05 **Ruthenium Bipyridine Complexes for Photocatalytic Reactions**
Erika Martin Arrieta, Universidad Nacional Autónoma de México, México

16:05-16:20 Coffee Break **Main Hallway**

16:20-16:40 **Photo-Catalytic CO_2 Conversion Using Wireless Photo Voltaic Cell**
Kibum Kim, Chungbuk National University, South Korea

16:40-17:00 **Visible Light Induced Methanol Production from CO_2 with the Hybrid System of Biocatalyst and Photocatalyst**
Yutaka Amao, Osaka City University, Japan

17:00-17:20 **Fuel-Forming Electrocatalysis on Dynamically Strained Electrodes**
Drazenka Svedruzic, National Renewable Energy Laboratory, CO, USA

17:20-17:40 **Partial Oxidation of Ethanol Using V/ZrO_2 and V/TiO_2 Catalysts in a Bench Scale Flow Reactor. NIR Analysis Possibilities of Products**
R Velvarská, Unipetrol Centre of Research and Education, Czech Republic

17:40-18:00 **Some Advances in HDT Catalysts Developed in the Last Two Decades at CICAT-UIS Colombia**
Víctor Gabriel Baldovino Medrano, Universidad Industrial de Santander, Colombia

18:00-18:15 **Regeneration Study of Ni/Hydroxyapatite Reforming Catalyst**
Bruna Rego de Vasconcelos, Université de Toulouse, France

18:15-18:30 **Colloidal Solution Combustion Synthesis: A Novel Scalable Method to Produce Catalysts with Tailored Porosity**
Albert A Voskanyan, The University of Hong Kong, Hong Kong

18:30-19:10 **Poster Presentations (See Annexure)** ***Francis Scott Key Room***

Technical Session-4 Nanocatalysis • Reaction Engineering ***Harbor Room***

Session Chairs **Jie Liu, Duke University, NC, USA**
Yu-Wen Chen, National Central University, Taiwan

11:00-11:20 **Product Selectivity in Plasmonic Photocatalysis for Carbon Dioxide Hydrogenation**
Jie Liu, Duke University, NC, USA

11:20-11:40 **Photocatalytic Activity of Ascorbic Acid–modified TiO_2 Sol Prepared by Peroxo Sol–gel Method**
Yu-Wen Chen, National Central University, Taiwan

11:40-12:00 **Exploration of Multiply Twinned AgNi Alloy Nanoparticles as Highly Active Catalyst for Multiple Transformation Reactions**
Sasanka Deka, University of Delhi, India

12:00-12:20 **Synthesis of Metal-Based Nanomaterials for Catalysis Inspired by Molecular Chemistry Concepts**
Karine Philippot, Université de Toulouse, France

12:20-12:40 **Effect of $CeZrO_2$-Modification pf (Pd-Rh)/Al_2O_3 Catalyst Upon CH_4 Bi-Reforming Performance**
Kiseok Kim, Yeungnam University, South Korea

12:40-13:00 **Copper and Palladium Nano-Catalysts in Eco-friendly Media: From the Design to Applications**
Montserrat Gomez, Université de Toulouse, France

13:00-13:15 **Plant-Mediated Synthesis of ZnO Supported Ni-Pd Alloy Catalyst for the Selective Hydrogenation of 1, 3-butadiene**
Tareque Odoom-Wubah, Xiamen University, China

13:15-14:05 Lunch Break **Pre Registration Area**

14:05-14:25 **Integrated Nanomaterials for Heterogeneous Catalysis**
Hua Chun Zeng, National University of Singapore, Singapore

14:25-14:45 **Kinetic Evaluation of p-nitrophenol Reduction Using a Green Hydrogen Source in Presence of Ag-Cu Bimetallic Nanocatalysts**
I Sinha, Indian Institute of Technology (BHU), India

14:45-15:05 **Synthesis of Sm^{3+}-Doped Graphitic Carbon Nitride Nanosheets for the Photocatalytic Degradation of Organic Pollutants Under Sunlight**
Jesty Thomas, Kuriakose Elias College, India

15:05-15:25 **Stability of Metal Alloy Nanoparticles Supported Catalysts Under Reaction Conditions**
Daniela Zanchet, University of Campinas, Brazil

15:25-15:45 **NMR-based Characterization of Gas Phase Reaction Processes Within Monolithic Catalyst Supports**
Jürgen Ulpts, University of Bremen, Germany

15:45-16:05 **Fabrication and Characterization of Nylon-6-MWCNT Nanocomposite as an Electrochemical Sensor for Sodium Ions Concentration Detection in Sweat**
Hanieh Ghadimi, The University of Akron, OH, USA

16:05-16:20 Coffee Break **Main Hallway**

16:20-16:40 **The Development of Ammonia-fuelled Microchannel Reactors for Hydrogen Production**
Steven Chiuta, HySA Infrastructure Centre of Competence, South Africa

16:40-17:00 **Measurement and Modeling of the Thermodynamic Properties for New Fluids and Their Mixtures Used in Various Energy Conversion Systems**
Hiroyuki Miyamoto, Toyama Prefectural University, Japan

17:00-17:20 **Eu-Doped MnO_x-TiO_2 Catalyst for the NH_3-SCR of NO_x**
Jian-Wen Shi, Xi'an Jiaotong University, China

17:20-17:40 **Revealing the Catalytic Activation Energy of Single Nanocatalysts**
Weilin Xu, Chinese Academy of Sciences, China

17:40-18:00 **Thermodynamic Investigation of the Effect of CO_2 on the Stability of $(La0.8Sr0.2)0.98MnO_3\pm\delta$**
Shadi Darvish, Florida International University, FL, USA

18:00-18:20 **Evaluating the Crystallization Process of Nanozeolite Catalysts by Infrared Spectroscopy and Chemometrics**
M Khanmohammadi, Imam Khomeini International University, Iran

18:30-19:10 **Poster Presentations (See Annexure)** *Francis Scott Key Room*

Day-3 February 24, 2017

Technical Session-5 Environmental Catalysis & Electrocatalysis *Annapolis Room*

Session Chairs **Shouzhong Zou, American University, DC, USA**
Kyeongjae Cho, University of Texas at Dallas, TX, USA

8:25-8:45 **Rationally Identifying Active Sites of Graphene Based Catalysts for Oxygen Reduction Reaction**
Kyeongjae Cho, University of Texas at Dallas, TX, USA

8:45-9:05 **PtNi Nano-crystals as High Performance Catalysts for Oxygen Reduction Reaction**
Shouzhong Zou, American University, DC, USA

9:05-9:25 **Oxide-Encapsulated Electrocatalysts**
Daniel V Esposito, Columbia University in the City of New York, NY, USA

9:25-9:45 **Catalytic Oxidation of Trichloroethylene Over TiO_2 Supported Ruthenium Catalysts**
Jian Wang, Chinese Academy of Sciences, China

9:45-10:05 **Cobalt Oxide-Oxidized Graphene Nanocomposites as Bifunctional Electrocatalysts for Oxygen Reduction and Evolution Reactions**
Cristina Freire, University of Porto, Portugal

10:05-10:25 **Novel POM@graphene Hybrids as Efficient Electrocatalysts for the Hydrogen Evolution Reaction**
Diana M Fernandes, Universidade do Porto, Portugal

10:25-10:45 **Activation of Persulfate with Magnetic $BiFeO_3$ Nanoparticles for the Degradation of Aniline**
Imtyaz Hussain, Jinan University, China

10:45-11:00 **Coffee Break** **Main Hallway**

11:00-11:20 **Effect of the Reduction Temperature of Carbon Supported-Metallic Catalysts in the Gas Phase Hydrodechlorination of Chloromethanes**
Alejandra Arevalo Bastante, Universidad Autónoma de Madrid, Spain

11:20-11:40 **Low Temperature SCR Poisoning by SO_2 over $MnFe/TiO_2$ Catalyst**
Hsunling Bai, National Chiao Tung University, Taiwan

11:40-12:00 **The Effect of Graphene Based Co-catalysts on the Photo-catalytic Abatement of VOCs**
Martina Roso, University of Padova, Italy

12:00-12:20 **Investigation of Modified Ni-based Electrode Materials for SOFC & SOEC Applications**
Dimitrios K Niakolas, Institute of Chemical Engineering Sciences(FORTH/ICE-HT), Greece

12:20-12:40 **Plasmonic Photocatalysts with Enhanced Photocatalytic Activity**
Ewa Kowalska, Hokkaido University, Japan

12:40-13:00 **Ammonia Oxidation at Chemically and Electrochemically Nanostructured Pt Nanoparticles**
Carlos R Cabrera, University of Puerto Rico, Puerto Rico

13:00-13:45 **Lunch Break** **Pre Registration Area**

13:45-14:05 **Incineration of Toxic Emissions over Novel Pt/Fiberglass Catalyst**
Bair Bal'zhinimaev, Boreskov Institute of Catalysis, Russia

14:05-14:25 **Silica Supported Photocatalysts for Removal of Organic Pollutants from Wastewater**
Nataša Novak Tušar, National Institute of Chemistry, Slovenia

14:25-14:45 **The Effect of Template's Pore Size for Ethanol Oxidation Activity of 3D-MnO_2**
Bingyang Bai, Chinese Research Academy of Environmental Sciences, China

14:45-15:05 **TiO_2 Surface Decoration with Metal Nanoparticles: Visible-Light Photocatalysis to Improve Indoor Air Quality**
Marta Stucchi, University of Milano, Italy

15:05-15:25 **Modeling NOx Storage and Reduction for a Diesel Automotive Catalyst Based on Synthetic Gas Bench Experiments**
Federico Millo, Politecnico di Torino, Italy

15:25-15:45 **Inhibition of Ferrate(VI) Self-decay on Layered Double Hydroxide for Organic Compound Degradation**
Jizhi Zhou, Shanghai University, China

15:45-16:05 **Synthesis of High-value-added Catalysts from Heavy Metal Wastes for Effective Removal of Sulfur Hexafluoride**
Jia Zhang, Shanghai University, China

16:05-16:20 **Coffee Break** **Main Hallway**

16:20-16:35 **Trimetallic Catalysts Ferrites Niobium-Molybdenum Bulk and Supported on Aerogels Carbon for HDS of Thiophene**
Aida Liliana Barbosa Lopez, University of Cartagena, Colombia

16:35-17:50 **Design of Graphene Oxide Loaded Binary Metal Oxides for High Performance of NO Catalytic Reduction**
Senyuan Shen, Shanghai University, China

17:50-18:05 **Catalytic Degradation of Natural Organic Matter (NOM) by Advanced Oxidation Technologies**
Ana María García, Universidad de Nariño, Colombia

18:05 ***Departures***

Technical Session-6 *Fluid Dynamics • Catalytic Mechanisms & Kinetics* *Harbor Room*

Session Chairs Ana P Carvalho, Universidade de Lisboa, Portugal
Gargi Das, Indian Institute of Technology, India

8:25-8:45 **Plasma-Assisted Catalytic Dry Reforming of Methane: Exploring the Effects of Dielectric Barrier Discharge Plasma on Catalytic Performance**
Jason C Hicks, University of Notre Dame, IN, USA

8:45-9:05 **New Supported Oxo-Metal- Catalysts for Glycol Deoxydehydration**
Kenneth M Nicholas, University of Oklahoma, OK, USA

9:05-9:25 **Catalysts and Adsorbents by Design Using Nanowire Based Materials**
Mahendra Sunkara/Babjide Patrick Ajayi, University of Louisville, KY, USA

9:25-9:45 **Activation of Lipase Using Ionic Liquid Engineering**
Toshiyuki Itoh, Tottori University Koyama-minami, Japan

9:45-10:05 **Kinetics of Hydroformylation of Propylene in Propane-Expanded Liquid with Rh-Based Complexes**
Dupeng Liu, University of Kansas, KS, USA

10:05-10:25 **Vortex Flow Reactor: Potential Applications in Chemical Engineering**
María Jose Ibanez Gonzalez, Almería University, Spain

10:25-10:45 **Identification of Active Sites for Methyl Lactate Dehydration on Faujasites**
Bingjun Xu, University of Delaware, DE, USA

10:45-11:00 Coffee Break **Main Hallway**

11:00-11:20 **Transient CFD Investigation of Photocatalytic Reactors**
Siegfried Denys, University of Antwerp, Belgium

11:20-11:40 **Numerical Simulation of the Marangoni Effect in the Microstructure, Microhardness and Corrosion Characteristics of the Al-Fe Alloy Varying the Laser Remelting Treatment Velocity**
Moises Meza Pariona, State University of Ponta Grossa, Brazil

11:40-12:00 **Understanding and Intensifying Cyclopropanation Process in Microtube Reaction Platform: A Case Study**
Yangcheng Lu, Tsinghua University, China

12:00-12:20 **Enhanced Oxidation Catalysis by a Molybdenum Complex Supported on Biochar**
Ana P Carvalho, Universidade de Lisboa, Portugal

12:20-12:40 **Does Water Hardness Improve the Adsorption of an Acidic Pharmaceutical onto Activated Carbons?**
Ana S Mestre, Universidade de Lisboa, Portugal

12:40-13:00 **MoS_2-Based Catalysts Sensitivity for FCC Gasoline Hydrodesulfurization: Feedstocks Composition Influence**
Sylvette Brunet, University of Poitiers, France

13:00-13:45 Lunch Break **Pre Registration Area**

13:45-14:05 **Monte Carlo Simulations of p-nitrophenol Adsorption in Presence of Water on Silver Nanoparticles**
A K Mukherjee, Indian Institute of Technology (BHU), India

14:05-14:25 **Flow Pulsation Induced Process Intensification in Liquid-Liquid Milli-Contactors**
Gargi Das, Indian Institute of Technology Kharagpur, India

14:25-14:45 **Molecular Organometallic Species on Carbon-Based Materials for Catalytic Applications**
Sungjin Park, Inha University, South Korea

14:45-15:05 **Selective Aerobic Oxidation of *p*-Cresol with Co-Catalysts between Metalloporphyrins and Metal Salts**
Haiyan Fu, South-Central University for Nationalities, China

15:05-15:25 **Selective Catalytic Reduction of C=O and C=C Bond in Oleic Acid to Biofuel Without Hydrogen Donor Using Nanoscale Catalyst Synthesized by Atomic Layer Deposition**
Jie Fu, Zhejiang University, China

15:25-15:45 **Nano-engineered Joining Employing Surface Modified Graphite Nanomaterials**
Iman Harsini, Michigan State University, MI, USA

15:45-16:05 **Removal of Dissolved Oxygen Using a Platinum Impregnated Catalytic Membrane**
Ifeyinwa Orakwe, Robert Gordon University, UK

16:05-16:20 **Glycerol Esterification Over Amberlyst-35: An Experimental Design Approach for Kinetic Modeling**
Karen Vannessa Caballero, Universidad Industrial de Santander, Colombia

16:20-16:35 **Assessment of the Lower Cretaceous Source Rock Using PetroMod Approach in West Qurna Oilfield- Southern Iraq**
Rasha F Faisal, Baghdad University, Iraq

16:35 ***Departures***

P-1 **Plasma-Catalytic Decomposition of Nitrous Oxide over Ru/Y-Alumina**
Young Sun Mok, Pennsylvania State University, PA, USA

P-2 **Esterification of Oleic Acid Using Dual-End-Functionalized Sn-Phyllosilicates**
Ji-Yeon Park, Korea Institute of Energy Research, South Korea

P-3 **Synthesis of Magnetic Ru/Fe_3O_4@C Nanospheres with Controlled Carbon Layer and its High Selectivity to Prepare Cis-pinane**
Yue Liu, Qingdao University of Science and Technology, China

P-4 **Preparation of Alkylates Gasoline in Polyether-Based Acidic Ionic Liquids**
Fengli Yu, Qingdao University of Science and Technology, China

P-5 **Simulation of a Three-Way-Catalyst Using a Transient Multi-Channel Model**
Jana Aslanjan, Brandenburg University of Technology, Germany

P-6 **Catalysts for the Abatement of Industrial VOCs**
Zhu Tingyu, Chinese Academy of Sciences, China

P-7 **Controlled Synthesis and *In-Situ* Spectroscopic Study of Highly Efficient Pt-Based Bimetallic and Trimetallic Nanocatalysts**
Hua Zhang, Xiamen University, China

P-8 **NH_3 – SCR of NO on Vanadium Oxides at Low Temperature**
Makoto Mino, Tokyo Metropolitan University, Japan

P-9 **Some Advances in Photodisinfection Catalysts Developed in the Last Decade at CICAT-UIS Colombia**
Luz M Ballesteros, Universidad Industrial de Santander, Colombia

P-10 **Visible-Light-Driven Photocatalytic CO_2 Reduction Using an Organic Semiconductor and Ru(II) Binuclear Complex Hybrid Photocatalysts**
Ryo Kuriki, Tokyo Institute of Technology, Japan

P-11 **Preparation and Characterization of Graphene Oxide-TiO_2 -Ag_2CO_3 based Catalysts for VOCs Photo-oxidation**
Michele Modesti, University of Padova, Italy

P-12 **Evaluation Performance of α-alumina Nano-Porous Ceramic Composite for Esterification Applications in Petroleum Refinery**
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The scale-up of over 99% of catalytic reactions is limited by heat and mass transport resistances that occur at the micron scale (Figure 1). IntraMicron's microfibrous entrapped catalyst (MFEC) technology improves catalyst performance and facilitates scale-up by simultaneously minimizing heat and mass transport resistances in the catalyst bed. MFECs achieve these performance enhancements by entrapping small catalyst particles (typically 40 – 300 microns) in an open network of sinter-welded micron diameter metal fibers.

Improved heat transfer is required to enhance the effectiveness factor.

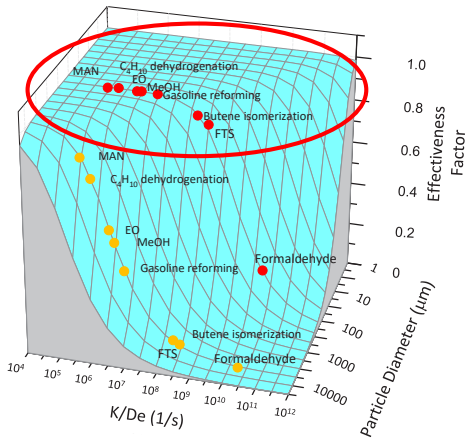

Figure 1. Comparison of the effectiveness factor (observed reaction rate / intrinsic reaction rate) of MFECs(red) and packed bed (yellow) catalysts for several exothermic catalytic processes.

MFECs provide a demonstrated 10- to 50- fold improvement in the effective radial conductivity through the bed and a 3 – 10 fold improvement in the heat transfer coefficient between the catalyst and inside reactor wall (Figure 2). The performance of a microfibrous entrapped catalyst is analogous to a fixed fluidized bed and provides a uniform velocity profile, no channeling, high thermal conductivity, efficient wall contacting, fast heat transfer, near isothermal temperature profiles, and improved heterogeneous contacting. These performance enhancements have significant benefits for processes including reduced CAPEX and OPEX, minimized impact of process upsets, lower catalyst loading, enhanced catalyst life, improved selectivity, simplified selectivity control, efficient regeneration, and straightforward scale-up.

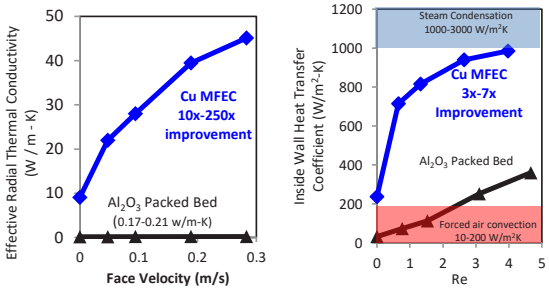

Figure 2. Cu MFEC provides a 10- to 50-fold improvement in effective radial conductivity (Left) and a 3- to 10- fold improvement in inside the wall heat transfer coefficient (Right).

MFECs alone have an ROI of greater than 500% with a payback time of < 1 year due to enhanced catalyst utilization, enhanced activity maintenance, improved selectivity per pass, and increased robustness to process upsets. Microfibrous entrapped catalysts are produced by robust, high-speed wetlay processes that efficiently scale to any required production level. Furthermore, current microfibrous entrapped catalyst manufacturing technology enables any catalyst to be entrapped in a pre-manufactured microfibrous media using methods which do not alter the chemical structure of the catalyst.

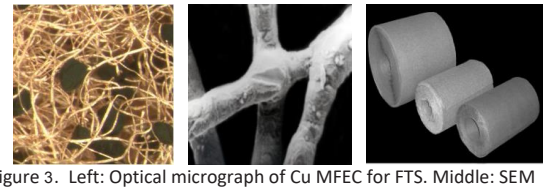

Figure 3. Left: Optical micrograph of Cu MFEC for FTS. Middle: SEM micrograph of a sintered fiber junction. Right: Rolls of Microfibrous Media

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