

**ISCRE 24 Program Schedule  
Sunday, June 12**

1:00 - 7:00 pm	Symposium Registration (4 <sup>th</sup> floor outside Great Lakes Ballroom)		
2:00 - 5:00 pm	Computational Catalysis Workshop (Lake Calhoun)	Reaction Kinetics Workshop (Lake Minnetonka)	Laboratory Reactors Workshop (Lake Harriet)
5:00 - 6:30 pm	<b>Dinner on Own</b>		
6:30 - 7:30 pm	Opening Plenary Presentation (Great Lakes Ballroom): <b>Gavin Towler</b> ( <i>VP and Chief Technology Officer of Honeywell Performance Materials and Technologies</i> ) Aris Award Presentation, sponsored by UOP		
7:30 - 9:00 pm	<b>Welcome Reception (Regency Room, 2<sup>nd</sup> Floor)</b>		

**ISCRE 24 Program Schedule  
Monday, June 13**

**Great Lakes Ballroom**

8:00 - 8:10 am	Introductory Remarks and Symposium Announcements			
8:10 - 8:55 am	Plenary: "Towards more general descriptors of reactivity in acid and oxidation catalysis by metal oxides," <b>Enrique Iglesia</b> ( <i>University of California at Berkeley</i> ) (6)			
8:55 - 9:40 am	The Dow Chemical Company Plenary: "Applications of Continuous Reactors in Pharmaceutical Manufacturing," <b>Martin D. Johnson</b> , Scott A. May, and Kevin P. Cole ( <i>Eli Lilly and Company</i> ) (29)			
9:40 - 10:05 am	<b>Break: Coffee and Refreshments</b>			
	<b>Great Lakes A</b>	<b>Great Lakes B</b>	<b>Great Lakes C</b>	<b>Lake Superior (5<sup>th</sup>)</b>
	<b>Session 1</b> Chair: Vemuri Balakotaiah Co-Chair: Bill Epling <b>Environmental Reaction Engineering</b>	<b>Session 2</b> Chair: Wei Ge Co-Chair: Xingui Zhou <b>Mixing, Mass Transfer, Reactor Scale-Up 1</b>	<b>Session 3</b> Chair: Marc-Olivier Coppens Co-Chair: Ryan Hartman <b>Novel Reactors and Process Intensification 1</b>	<b>Session 4</b> Chair: James Lattner Co-Chair: Amol Kulkarni <b>Catalytic Reaction Engineering 1</b>
10:05 - 10:25 am	"Fast Cycling Storage and Reduction of NO: Experiments and Modeling," Allen Ting, Mengmeng Li, Yang Zheng, Vemuri Balakotaiah, Dan Luss and <b>Michael Harold</b> (363)	"Effect of Pulsating Flow in FCC Riser," <b>Milinkumar Shah</b> , Ranjeet Utikar and Vishnu Pareek (48)	<b>Keynote:</b> "New Methods in Solid State Reaction Engineering: Molecular Mechanisms of Cellulose Pyrolysis," <b>Paul J. Dauenhauer</b> , Christoph Krumm, Cheng Zhu, Saurabh Maduskar (432)	"Catalytic Methane Combustion on a Platinum-Gauze: Experimental Reactor Profiles, Spatially Resolved Laser Induced Fluorescence Spectroscopy and Numerical Reactor Simulations," <b>Raimund Horn</b> , Ying Dong and Heiner Schwarz (163)
10:25 - 10:45 am	"Experimental and Modeling Investigation of an Unexpected Kinetic Regime in Commercial Cu/Z SCR Catalyst," <b>Saurabh Joshi</b> , Ashok Kumar, Anand Srinivasan, Neal Currier, Krishna Kamasamudram and Aleksey Yezerets (332)	"Optical Measurements of Local Bubble Characteristics in Gas-Liquid Stirred Tank Equipped with Axial Impellers," <b>Baranivignesh Prakash</b> , Milinkumar Shah, Vishnu Pareek and Ranjeet Utikar (408)		"Co-oxidation of CO and Hydrocarbons on Pd/Ceria-Zirconia/Al <sub>2</sub> O <sub>3</sub> Three-way Catalysts: Experiments and Modeling," <b>Wendy Lang</b> , Michael P. Harold, Yisun Cheng, Carolyn Hubbard, Manish Sharma and Paul Laing (113)
10:45 - 11:05 am	"Coupled Homogeneous and Heterogeneous Hydrocarbon Oxidation in Low Temperature Combustion Exhaust," <b>Melanie Hazlett</b> and William Epling (69)	<b>Keynote:</b> "Radiotracer Methods, CFD and Scale-Up: Current Status and Future Trends," <b>Shantanu Roy</b> (227)	"A Systematic Methodology for the Virtual Reconstruction of Open-Cell Foams," <b>Mauro Bracconi</b> , Matteo Maestri, Gianpiero Groppi and Enrico Tronconi (244)	"Mechanistic Details of Catalytic Redox Processes During Alkanol-O <sub>2</sub> Reactions on Oxides: Experiment and Theory," <b>Prashant Deshlahra</b> and Enrique Iglesia (413)
11:05 - 11:25 am	"Understanding the Nature and Speciation of the Active Sites on Cu-SSZ-13 During the Selective Catalytic Reduction of NO <sub>x</sub> ," <b>Arthur J. Shih</b> , Ishant Khurana, Atish a. Parekh, Jonatan Albarracin, Christopher Paolucci, John R. Di Iorio, Hui Li, W. Nicholas Delgass, Aleksey Yezerets, Jeffrey T. Miller, William F. Schneider, Rajamani Gounder and Fabio H. Ribeiro (411)		"Highly Conductive 'Packed Foams' for the Intensification of Catalytic Processes in Compact Tubular Reactors," Carlo Giorgio Visconti, Gianpiero Groppi and <b>Enrico Tronconi</b> (364)	"In-Situ Investigations of Catalytic NO Reduction Via Planar Laser-Induced Fluorescence," <b>Alexander Zellner</b> , Rainer Suntz and Olaf Deutschmann (151)
11:25 - 11:45 am	<b>Invited:</b> "Investigation of SO <sub>x</sub> and NO <sub>x</sub> Chemistry in Oxy-Combustion Flue Gas," Nujhat Choudhury and <b>Bihter Padak</b> (343)	"Optimized Heat Transfer Performance of Catalytic Reactors with Novel Structured Supports: Aspects for Proper Design" Silvia Razza, Tobias Heidig, Gianpiero Groppi, Wilhelm Schwieger, Enrico Tronconi and <b>Hanns Jörg Freund</b> (256)	"Microtomography-Based Numerical Simulations of Heat Transfer and Fluid Flow Through $\beta$ -SiC Open-Cell Foams for Catalysis," <b>Xiaolei Fan</b> , Petr Denissenko and Alexei Lapkin (23)	"Kinetic Measurements of Gas-Solid Heterogeneous Catalyzed Reactions Involving Commercial-Scale Particles Using a Novel Jet-Loop Reactor," <b>Anuradha Nagaraj</b> and Patrick Mills (303)

**ISCRE 24 Program Schedule  
Monday, June 13 (continued)**

Lunch (Northstar Room, 2 <sup>nd</sup> Floor)				
	<b>Session 5</b> Chair: Paul Witt Co-Chair: Carmo J. Pereira <b>Industrial Frontiers</b>	<b>Session 6</b> Chair: Shantanu Roy Co-Chair: Faical Larachi <b>Mixing, Mass Transfer, Reactor Scale-Up 2</b>	<b>Session 7</b> Chair: Ben Wilhite Co-Chair: Ryan Hartman <b>Novel Reactors and Process Intensification 2</b>	<b>Session 8</b> Chair: Kevin Van Geem Co-Chair: Richard West <b>Computational Chemistry and Catalysis 1</b>
11:45 - 1:15 pm				
1:15 - 1:35 pm	Invited: "Applying Chemical Reaction Principles to Investigate the Dynamics of Organic Light-Emitting Devices," K.W. Hershey, G. Qian, <b>D. Wayne Blaylock</b> , and R.J. Holmes (295)	"The Hydrodynamics of Trickle Bed Reactors," <b>Gregory Honda</b> and Arvind Varma (112)	"A Novel Micro Membrane Reactor for Continuous Direct Synthesis of Hydrogen Peroxide," <b>Manuel Selinsek</b> , Manfred Kraut and Roland Dittmeyer (179)	"Methane Activation on Transition Metals in the Presence of an Oxidizing Agent," <b>Shengguang Wang</b> , Justin Dodson, William S. Epling and Lars C. Grabow (61)
1:35 - 1:55 pm	"Using Chemistry-Oriented Lumping to Model Heavy Oil Hydroprocessing," <b>Steven Pyl</b> and Richard Quann (223)	"Packing Patterns in Packed Beds: Experiments and Numerical Simulations," <b>Akarsha Srivastava</b> , Thameed Aijaz, K. D. P. Nigam and Shantanu Roy (342)	<b>Keynote:</b> "Engineering Flow Chemistry," <b>Klavs F. Jensen (361)</b>	"Methane C-H Bond Activation on Metal Oxide Surfaces: the Nature and Role of Metal-Oxygen Pairs in Reaction Mechanisms and Energetics," <b>Jithin John Varghese</b> , Quang Thang Trinh and Samir Hemant Mushrif (368)
1:55 - 2:15 pm	"Exploring the Dynamic Behavior of Gas-Solid Catalytic Reactions Using Feed Switching Experiments – Case Study of Cu-Based Methanol Synthesis Catalyst Functionality under CO/H <sub>2</sub> and CO/CO <sub>2</sub> /H <sub>2</sub> Feeds," <b>Sam K. Wilkinson</b> , Leon G.A. van de Water, Brendon Miller, Mark J.H. Simmons, E. Hugh Sitt and Mike J. Watson (189)	"Dow Al-Dahhan Cell for Measuring Intrinsic Kinetics of a Reaction in Two-Fluid-Phase System," <b>Hsu Chiang</b> , Jeff Ferrio, Xiaoyun Chen, Kishore Kar, Joel Reihl, Michael Church, Dan Friedhoff and Muthanna Al-Dahhan (121)		"First Principles Assessment of BEP Relations for Structure-Dependent Microkinetic Modeling in Heterogeneous Catalysis," Filippo Motta and <b>Matteo Maestri (378)</b>
2:15 - 2:35 pm	"Novel W-Ni/Zeolite Catalysts for Light Cycle Oil Hydrocracking to High Octane Gasoline," <b>Chong Peng</b> , Ronghui Zeng, Rong Guo and Xiangchen Fang (31)	"Compartmental Model of Gas-Liquid Precipitation in a Stirred Tank Reactor," <b>Wenli Zhao</b> , Elina Nauha, Antonio Buffo and Ville Alopaeus (79)	"Pinch Tube Flow Reactor for Exothermic Multi-Phase Reactions," Mrityunjay Sharma, Shital Potdar and <b>Amol Kulkarni (391)</b>	<b>Keynote:</b> "A Roadmap for Designing Improved Catalysts from Fundamental Mechanistic Studies," <b>Manos Mavrikakis (4)</b>
2:35 - 2:55 pm	"Efficient Propylene Production from Light Hydrocarbons with MFI-Zeolite/Metal-Oxide Composite Catalysts," <b>Shinya Hodoshima</b> , Azusa Motomiya, Shuhei Wakamatsu and Fuyuki Yagi (142)	"Phase Transfer Catalyzed Reaction for a Novel Organosilane Coupling Agent," <b>Michael DePierro</b> and John Gohndrone (279)	"Process Intensification of Gas-Liquid Cocurrent Downflow and Upflow Packed Bed Reactors by a New Low-Shear Rotating Tubular Fixed Bed Concept," Amir Motamed Dashliborun, Hans-Ullrich Härting, <b>Markus Schubert</b> and Faical Larachi (289)	
2:55 - 3:20 pm	<b>Break: Coffee and Refreshments</b>			

**ISCRE 24 Program Schedule  
Monday, June 13 (continued)**

	<b>Session 9</b> Chair: Doraiswami Ramkrishna Co-Chair: Alan Stottleyer <b>Biochemical Reaction Engineering</b>	<b>Session 10</b> Chair: Pierdomenico Biasi Co-Chair: Sweta Somasi <b>Mixing, Mass Transfer, Reactor Scale-Up 3</b>	<b>Session 11</b> Chair: Craig Taatjes Co-Chair: Judit Zador <b>Gas Phase Reactions</b>	<b>Session 12</b> Chair: Enrico Tronconi Co-Chair: Pankaj Gautam <b>Catalytic Reaction Engineering 2</b>
<b>3:20 - 3:40 pm</b>	<b>Invited:</b> “ <sup>13</sup> C Flux Analysis of Metabolic Pathophysiology in Cells and in Vivo Mouse Models,” <b>Jamey Young</b> (354)	“Intrinsic Kinetics for Gas-Liquid Reactions in Laboratory- and Pilot-Scale Studies with Gas-Inducing Impellers” <b>Bryan Patel</b> , Travis Reine, Jihad Dakka and Edmund Mozeleski (284)	“Mechanisms of Consumption of Alkenes in Supercritical Water Treatment and Pyrolysis of Hexylbenzene,” <b>Lawrence Lai</b> , Soumya Gudiyella and William Green (269)	“Effects of Molecule Structure and Pore Size on Mechanisms for Zeolite-Catalyzed Hydrocarbon Cracking,” <b>Peng Bai</b> , Craig Plaisance and Matthew Neurock (347)
<b>3:40 - 4:00 pm</b>	“Mathematical Modeling and Analysis Explains Aberrant Positive Effects of Micro-RNA on Target mRNA,” Sucheta Gokhale, Dimpal Nyayanit and <b>Chetan Gadgil</b> (30)	“Experimental and Numerical Simulation of Film Flow on a Rotating Disk,” <b>Yuan Zong</b> , Bin Deng, Hanguang Xie, Jianguang Hu and Xiaogang Yang (316)	<b>Invited:</b> “Automated Elementary Kinetics for Gas-Phase Reactions,” <b>Judit Zádor</b> (415)	“Selective Production of Iso-Butylene from Acetone over Ferrisilicate with MFI Structure,” <b>Yuta Nakasaka</b> , Taichi Taniguchi, Teruoki Tago and Takao Masuda (153)
<b>4:00 - 4:20 pm</b>	<b>Keynote:</b> “Stability as a Criterion in Metabolic Design,” <b>James Liao</b> (425)	“Ionic Liquid Based Droplet Formation and Mass Transfer Study in Microfluidic Devices,” <b>Lin Bai</b> , Yuhang Fu, Shufang Zhao and Yi Cheng (87)	“First-Principles Kinetic Model for 2-Methyl-Tetrahydrofuran Pyrolysis and Combustion,” <b>Ruben De Bruycker</b> , Luc-Sy Tran, Hans-Heinrich Carstensen, Pierre-Alexandre Glaude, Frédérique Battin-Leclerc, Guy Marin and Kevin Van Geem (77)	“Transesterification of Propylene Carbonate with Methanol to Dimethyl Carbonate over Calcium Oxide Catalyst: Effects of Catalyst Pre-Treatment,” <b>Ziwei Song</b> , Xin Jin, Bala Subramaniam and Raghunath Chaudhari (399)
<b>4:20 - 4:40 pm</b>		“Application of Circulating Fluidized Bed Reactors for Producing Clean Fossil Fuels and Biofuels,” <b>Angelos Lappas</b> , Dimitris Iatridis, Kostas Kalogiannis, Evie Kopalidou and Iacovos Vasalos (11)	“A Modeling Study of Polycyclic Aromatic Hydrocarbons (PAHs) Formed During the Pyrolysis of Hydrocarbons - Application to Low-Pressure Gas Carburizing Processes,” <b>Tsilla Bensabath</b> , Hubert Monnier and Pierre-Alexandre Glaude (56)	“Novel Iron-Based Composites as Catalysts for the Fischer-Tropsch Synthesis of Lower Olefins,” Di Wang, <b>Xuezhi Duan</b> , Gang Qian, De Chen, Xinggui Zhou and Weikang Yuan (36)
<b>4:40 - 5:00 pm</b>	“Goal-Directed Models of Metabolism and Gene Expression – Learning Cybernetic Objectives from Omic Data,” <b>Doraiswami Ramkrishna</b> , and Frank DeVilbiss (434)	“Micromixing Studies in Low-Frequency Rotating Magnetic Field Probed Via Villermaux-Dushman Reaction,” Shahab Boroun and <b>Faical Larachi</b> (68)	“Bifurcation Analysis of Methane Oxidative Coupling Without Catalyst,” <b>Vemuri Balakotiah</b> , Arun Kota, Sagar Sarsani and David West (404)	<b>Invited:</b> “Site Requirements for Selective Methane Coupling Reaction in an Oxy-Steam Stream,” <b>Kazuhiro Takanabe</b> (208)
<b>5:00 - 7:00 pm</b>	<b>Poster Session 1 (with Refreshments)</b>			
<b>7:15 - 10:00 pm</b>	<b>(Lake Calhoun, Lake Minnetonka, Lake Harriet, and Promenade)</b>			
	<b>Symposium Reception and Banquet</b>			
	<b>Including Amundson Award Presentation and Speech and ISCRE 25 Announcement</b>			
	<b>(Reception: Great Lakes Ballroom A — Banquet: Great Lakes Ballroom B/C)</b>			

## ISCRE 24 Program Schedule

Tuesday, June 14

Great Lakes Ballroom

8:00 - 8:10 am	Introductory Remarks and Symposium Announcements			
8:10 - 8:55 am	ExxonMobil Plenary: "Reaction Pathway Analysis of the (Bio)Conversion of (Bio)Macromolecules," <b>Linda Broadbelt</b> ( <i>Northwestern University</i> ) (12)			
8:55 - 9:40 am	Plenary: "Model-Based Reactor Design to Control Branched Polymer Architecture," <b>Hidetaka Tobita</b> ( <i>University of Fukui</i> ) (149)			
9:40 - 10:05 am	<b>Break: Coffee and Refreshments</b>			
	<b>Great Lakes A</b>	<b>Great Lakes B</b>	<b>Great Lakes C</b>	<b>Lake Superior (5<sup>th</sup>)</b>
	<b>Session 13</b> Chair: Pieter Iedema Co-Chair: Daryoosh Beigzadeh <b>Polymerization Reaction Engineering</b>	<b>Session 14</b> Chair: Matteo Maestri Co-Chair: Joris Thybaut <b>Modeling, Design, Control, Optimization of Chemical Reactors 1</b>	<b>Session 15</b> Chair: Julia Valla Co-Chair: Jake Kruger <b>Bio-derived Chemicals and Fuels 1</b>	<b>Session 16</b> Chair: Prashant Deshlahra Co-Chair: Rathna Davuluri <b>Catalytic Reaction Engineering 3</b>
10:05 - 10:25 am	<b>Keynote:</b> "Reaction Engineering in Enzyme-catalyzed Reactions," <b>Judit Puskas</b> (367)	"Large Eddy Simulation of Enhanced 3D Pyrolysis Reactors," <b>Pieter A. Reyniers</b> , Pieter P. Plehiers, David J. Van Cauwenberge, Kevin M. Van Geem and Guy B. Marin (247)	"Catalytic Conversion of Lignocellulosic Biomass to Commodity Chemicals," <b>Kefeng Huang</b> , Pranav U. Karanjkar, Kevin J. Barnett, Zach Brentzel, Siddarth H. Krishna, Ive Hermans, William F. Banholzer, James A. Dumesic, George W. Huber and Christos T. Maravelias (333)	"Insights into Catalysis over Supported Metal Particles at Reaction Conditions," <b>Matthew Neurock</b> (412)
10:25 - 10:45 am		"The Internal Combustion Engine as a Natural Gas Reformer: Operating Conditions Proposed by Numerical Optimization," <b>Hendrik Gossler</b> and Olaf Deutschmann (393)	"Exploiting the Tunable Acidity of Nb-KIT-6 Catalysts for Ethanol Dehydration: Experiments and Kinetic Modeling," <b>Hongda Zhu</b> , Anand Ramanathan and Bala Subramaniam (280)	"Bridging the Gap Between Chemistry and Chemical Reaction Engineering in the Direct Synthesis of Hydrogen Peroxide," Tapio Salmi, Nicola Gemo and <b>Pierdomenico Biasi</b> (356)
10:45 - 11:05 am	"Measurement and Modeling of Aqueous-Phase Radical Polymerization," Calista Preusser and <b>Robin Hutchinson</b> (193)	<b>Keynote:</b> "Virtual Process Engineering via Multi-Scale Discrete Simulation — from reactions to reactors," <b>Wei Ge</b> (365)	"Bifunctional Zeolites for Biomass Hydrolysis," <b>David Gamliel</b> and Julia Valla (299)	"Oxidative Dehydrogenation of n-butane and butenes to 1,3-butadiene over Mo-V and Mo-Bi based catalysts in a Two-Zone Fluidized Bed Reactor," <b>Julius Rischard</b> , Claudia Antinori, Lubow Maier and Olaf Deutschmann (210)
11:05 - 11:25 am	"Kinetics of Catalytic Olefins Polymerization from Bench-Scale to Industrial Slurry Reactors," <b>Maryam Tamaddoni</b> , Francesco Bertola and Job Guzman (60)		"Experimental Study and Mechanistic Modeling of Catalytic Effects of Sodium Ions on Fast Pyrolysis of Glucose-Based Carbohydrates," <b>Xiaowei Zhou</b> , Michael W. Nolte, Heather B. Mayes, Brent H. Shanks and Linda J. Broadbelt (383)	"Platinum-Copper Single Atom Alloys as CO-Tolerant Selective Hydrogenation Catalysts," <b>Jilei Liu</b> , Felicia Lucci, Ming Yang, Charles Sykes and Maria Flytzani-Stephanopoulos (335)
11:25 - 11:45 am	<b>Invited:</b> "Detailed Kinetic Analysis of Reversible Deactivation Radical Polymerization," <b>Dagmar D'hooge</b> (8)	"Reactive Modeling of a MTO Reactor by Combining CRE and CFD," <b>Bona Lu</b> , Hao Luo, Wei Wang and Jinghai Li (99)	"Hydrodeoxygenation of Lignin-Derived Phenolic Compounds on Molybdenum Carbides at Ambient Pressure and Low Temperatures," <b>Cha-Jung Chen</b> , Anurag Kumar, Wen-Sheng Lee and Aditya Bhan (355)	"Influence of Water on the Deprotonation and the Ionic Mechanisms of a Heck Alkynylation and Its Resultant E-Factors," <b>Chuntian Hu</b> , Kevin Shaughnessy and Ryan Hartman (7)
11:45 - 1:15 pm	<b>Lunch</b> (Northstar Room, 2 <sup>nd</sup> Floor)			

**ISCRE 24 Program Schedule  
Tuesday, June 14 (continued)**

	<b>Session 17</b> Chair: Wayne Blaylock Co-Chair: Amol Kulkarni <b>Novel Reactors &amp; Process Intensification 3</b>	<b>Session 18</b> Chair: Joris Thybaut Co-Chair: Matteo Maestri <b>Modeling, Design, Control, Optimization of Chemical Reactors 2</b>	<b>Session 19</b> Chair: Luke Williams Co-Chair: Matt Mettler <b>Bio-derived Chemicals and Fuels 2</b>	<b>Session 20</b> Chair: Raimund Horn Co-Chair: Prashant Deshlahra <b>Catalytic Reaction Engineering 4</b>
<b>1:15 - 1:35 pm</b>	“Process Intensification During Power Generation Via Membrane-Based Reactive Separations,” <b>Ashkan Garshashi</b> , Doug Parsley, Richard J Ciora, Paul KT Liu and Theodore T Tsotsis (265)	“Resolved-Particle Fixed Bed CFD with Microkinetics and Anisotropic Diffusion,” <b>Behnam Partopour</b> and Anthony Dixon (100)	“Ring-Opening and Decarboxylation of Biomass Derived Lactones and Pyrones,” <b>Shelaka Gupta</b> , Md. Imteyaz Alam, Nishant Sinha and M. Ali Haider (394)	“Hierarchical Analysis of the Gas-to-Particle Heat and Mass Transfer in Micro Packed Bed Reactors,” <b>Stefano Rebughini</b> , Alberto Cuoci and Matteo Maestri (230)
<b>1:35 - 1:55 pm</b>	“Aerobic Oxidation of Benzyl Alcohol in a Catalytic Membrane Reactor,” <b>Achilleas Constantinou</b> , Gaowei Wu, Simon Kuhn, Peter Ellis and Asterios Gavriilidis (253)	“In-Situ Adaptive Tabulation for the CFD Simulation of Heterogeneous Fixed Bed Reactors,” <b>Mauro Bracconi</b> , Alberto Cuoci and Matteo Maestri (224)	“Selective Production of Allyl-Alcohol from Glycerol over Iron Oxide Catalyst,” <b>Teruoki Tago</b> , Kazuhiro Terai, Hiroyasu Fujitsuka, Takuya Yoshikawa, Yuta Nakasaka and Takao Masuda (216)	<b>Keynote:</b> “ExxonMobil’s Methanol-to-Olefin Process: Reactor Development and Scale-Up,” <b>James Lattner</b> , Teng Xu, and Keith H. Kuechler (5)
<b>1:55 - 2:15 pm</b>	“Water Permselective SOD Zeolite Membranes for Methanol and Dimethyl Ether Synthesis by In-Situ Water Removal,” <b>Francis Bougie</b> , Maria Cornelia Iliuta, Ion Iliuta, Nolven Guilhaume and Pascal Fongarland (150)	“Effect of Bed Characteristics on Local Liquid Distribution in a Trickle Bed,” Arpit Jindal and <b>Vivek Buwa</b> (90)	“Renewable Isoprene by Dehydrodecarboxylation of Mevalonolactone,” William Bazela, <b>Torren Carlson</b> , Maggie Cervin, Rohan Durbal, Annalisa Hargis, Joseph McAuliffe, Joseph Murphy, James Ngai, Joachim Ritter, Karl Sanford, Sourav Sengupta and Gregg Whited (67)	
<b>2:15 - 2:35 pm</b>	“Cyclic Mass Transport Phenomena in a Novel Reactor for Gas-Liquid-Solid Contacting,” <b>Marius G. Gelhausen</b> , Fabian Krull and David W. Agar (76)	“Silane Pyrolysis in a Novel Bell-Jar Reactor: a CFD Study,” Xuegang Li and <b>Wen-De Xiao</b> (184)	“Insights Into the Mechanism and Activity of Metal Salt-Catalyzed Glucose Chemistry in Aqueous Solution,” <b>Hannah Nguyen</b> , Marta Gracia, Vladimiro Nikolakis and Dionisios Vlachos (374)	
<b>2:35 - 2:55 pm</b>	“CFD Simulations of Coupled Endothermic Methane Steam Reforming and Exothermic Combustion of Methane in an Annular Microchannel Reactor (AMR),” <b>Holly Butcher</b> , Peter Bossard, Andrew Kaldor and Benjamin Wilhite (317)	“Use of Euler-Euler Model and Internal Molecules Age Distribution Transport Theory to Assess and Predict Trickle-Bed Reactor Performance,” <b>Christophe Boyer</b> , Manel Fourati, Frederic Augier and Romain Thomas (136)	<b>Invited:</b> “Experimental Consideration of Catalytic Kinetics in the Aqueous Phase: Levulinic Acid Hydrogenation over Supported Ru,” <b>Jesse Bond</b> , Omar A. Abdelrahman, Helen Y. Luo, Andreas Heyden, and Yuriy Román-Leshkov (267)	“Reducing Diffusion Limitations Through Rational Design of Hierarchically Structured Catalysts – Application to the Alkylation of Benzene with Ethylene,” <b>Sanjeev Rao</b> , Erisa Saraci, Roger Glaeser and Marc-Olivier Coppens (241)
<b>2:55 - 3:20 pm</b>	<b>Break: Coffee and Refreshments</b>			

**ISCRE 24 Program Schedule  
Tuesday, June 14 (continued)**

	<b>Session 21</b> Chair: Matt Neurock Co-Chair: John Kuhn <b>Electrochemical/Photochemical Reaction Engineering</b>	<b>Session 22</b> Chair: Kim McAuley Co-Chair: Hannsjörg Freund <b>Modeling, Design, Control, Optimization of Chemical Reactors 3</b>	<b>Session 23</b> Chair: Bala Subramaniam Co-Chair: Raghunath V. Chaudhari <b>Reactions in Condensed Media</b>	<b>Session 24</b> Chair: Richard West Co-Chair: Kevin Van Geem <b>Computational Chemistry and Catalysis 2</b>
3:20 - 3:40 pm	“The Intrinsic Kinetic of Reverse Water Gas Shift over Oxide Supported Gold Catalysts: the Role of Interfacial Sites and Plasmonic Enhancement,” <b>Insoo Ro</b> , Ronald Carrasquillo-Flores, Mrunmayi Kumbhalkar, Samuel Burt, Carlos Carrero, Ana Alba-Rubio, Jeffrey Miller, Ive Hermans, James Dumesic and George Huber (281)	“Development of a Grain Model Accounting for Solid Diffusion to Describe the Redox Kinetics of CuO/Al <sub>2</sub> O <sub>3</sub> Particles for Chemical Looping Combustion,” <b>Maria Angel San Pio Bordeje</b> , Fausto Gallucci, Ivo Roghair and Martin van Sint Annaland (9)	<b>Keynote:</b> “High Gravity High Shear for Intensified Chemicals Production,” <b>John van der Schaaf</b> and <b>Jaap Schouten</b> (175)	“Towards Fundamentals of $\chi$ -Fe <sub>5</sub> C <sub>2</sub> -Catalyzed Fischer-Tropsch Synthesis,” Bingxu Chen, Thanh Hai Pham, Nan Song, <b>Xuezhi Duan</b> , Gang Qian, De Chen and Xinggui Zhou (41)
3:40 - 4:00 pm	“Reaction Engineering of Photoreactions – Aspects to be Considered and Possible Benefits,” <b>Dirk Ziegenbalg</b> , Ümit Tastan, Benjamin Wriedt, Maximilian Machinek and Fabian Guba (373)	“Multicatalyst Hydrocracking Model Developed Using Data from a Pilot Plant Imitating the Commercial Operation,” <b>Mustafa Karakaya</b> , Anood Taher, Mohammad Abdur Rakib, Menwa Abdulrahman Dakhan, Mohamed Yousef Hussain, Adel Al Hamadi, Nilesh Chandak, Abraham George and Mohamed Al Musharfy (53)		“Mechanistic Insights Into Aqueous-Phase Dehydration of 1-Propanol over H-ZSM-5 Zeolites,” <b>Donghai Mei</b> and Johannes Lercher (124)
4:00 - 4:20 pm	<b>Keynote:</b> “Electrochemical Reaction Engineering of Polymer Electrolyte Fuel Cell,” <b>Motoaki Kawase</b> (392)	“Modelling and Analysis of the Lurgi-type Methanol-to-Propylene Reactor,” <b>Xun Huang</b> and Wen-De Xiao (160)	“Structural and Kinetic Characterization of Lewis Acid Zeolites for Sugar Isomerization Catalysis,” <b>James W. Harris</b> , Michael J. Cordon, John R. Di Iorio, Juan Carlos Vega-Vila, Fabio H. Ribeiro and Rajamani Gounder (221)	“Descriptor-Based Microkinetic Analysis of Propane Dehydrogenation,” Ling Xiao, <b>Yi-An Zhu</b> , Zhi-Jun Sui and Xing-Gui Zhou (144)
4:20 - 4:40 pm		“Simulation of NO <sub>x</sub> and Soot Abatement Via SCRoF With Cu-CHA and Fe-ZSM5 Catalysts,” <b>Samir Bensaid</b> , Vemuri Balakotaiah and Dan Luss (201)	“Glycerol Oxidation in Aqueous Phase by Using Silver-Based Catalysts: Kinetic Analysis and Modelling,” José Antonio Diaz, Soraya Zaid, Mickael Capron, Girardon Jean-Sebastien, Dumeignil Franck and <b>Pascal Fongarland</b> (271)	“Investigation of the Active Site and Kinetics on Lewis Acidic Zeolites for the Production of p-Xylene from Biomass-Derived 2,5-Dimethylfuran and Ethylene,” <b>Ryan Patet</b> , Stavros Caratzoulas and Dionisios Vlachos (238)
4:40 - 5:00 pm	“Experimental and Modeling Investigation of Ceria-Based IT-SOFCS for Use with Syngas and Biogas,” Alessandro Donazzi, Morteza Rahmanipour, Marta Boaro and <b>Matteo Maestri</b> (379)	“CO <sub>2</sub> Methanation: Optimal Start-Up Control of a Fixed-Bed Reactor for Power-To-Gas Applications,” <b>Jens Bremer</b> and Kai Sundmacher (234)	“Novel Hydroformylation of Propylene in Propane-Expanded Liquids with Rh-based Complexes,” <b>Dupeng Liu</b> , Zhuanzhuan Xie, Raghunath.V Chaudhari and Bala Subramaniam (288)	“Quantitative Estimates of Chemical Kinetics With Metadynamics,” <b>Jim Pfaendtner</b> (384)
5:00 - 7:00 pm	<b>Poster Session 2 (with Refreshments)</b> (Lake Calhoun, Lake Minnetonka, Lake Harriet, and Promenade)			
7:00 pm	<b>Dinner on Own</b>			

**ISCRE 24 Program Schedule  
Wednesday, June 15**

Great Lakes Ballroom

8:30 - 8:40 am	Introductory Remarks and Poster Awards Presentation		
8:40 - 9:25 am	SABIC Plenary: "From Polymer Colloids to Structured Materials," <b>Massimo Morbidelli</b> ( <i>ETH Zürich</i> ) (422)		
9:25 - 9:45 am	Break: Coffee and Refreshments		
	<b>Great Lakes A</b>	<b>Great Lakes B</b>	<b>Great Lakes C</b>
	<b>Session 25</b> Chair: Lakis Mountziaris Co-Chair: Wei Fan	<b>Session 26</b> Chair: Jaap Schouten Co-Chair: Sagar Sarsani	<b>Session 27</b> Chair: T.T. Tsotsis
	<b>Reaction Engineering of Novel Functional Materials</b>	<b>Modeling, Design, Control, Optimization of Chemical Reactors 4</b>	<b>Hydrogen Production and Utilization</b>
9:45 - 10:05 am	<b>Keynote:</b> "Flame Aerosol Reaction Engineering: From Functional Materials to the Assembly of Devices," <b>Sotiris Pratsinis</b> (21)	"Loading Methodologies and Impact on Packing Configurations," <b>Srikanth Panyaram</b> , David Slivensky, Ken Hampton, Xianchun Wu and Benjamin Wilhite (410)	"Steam Gasification of a Cellulose Surrogate Using a New Ni/La <sub>2</sub> O <sub>3</sub> -γAl <sub>2</sub> O <sub>3</sub> Catalyst: Kinetic Modeling," <b>Jahirul Mazumder</b> and Hugo de Lasa (290)
10:05 - 10:25 am		"Optimizing Chemical Reactor Performance by Exploiting the Interplay Between Heterogeneously Catalyzed and Homogeneous Reactions," <b>Jeroen Poissonnier</b> , Joris W. Thybaut and Guy B. Marin (255)	"Chemical Looping Dry Reforming: CO <sub>2</sub> as a 'Soft' Oxidant for Syngas Production," <b>Amey More</b> , Saurabh Bhavsar and Goetz Vesper (328)
10:25 - 10:45 am	"Tunable Stimuli-Responsive Properties of PEG-PDMAEMA Diblock Copolymers," <b>Elizabeth Glogowski</b> , Elizabeth Stubbs, Elizabeth Laskowski, Phillip Conon and Daniel Alves Heinze (64)	"Model-Based Design and Operation of Flow Reactors for Conversion of Fine Chemicals and Pharmaceuticals," <b>Xiaohong Cui</b> , Sam Mannan and Benjamin Wilhite (360)	"Pt/CNT Catalyzed Hydrolytic Dehydrogenation of Ammonia Borane: Thermodynamics and Kinetics," <b>Wenyao Chen</b> , Dali Li, Xuezhong Duan, Gang Qian, De Chen and Xingui Zhou (146)
10:45 - 11:05 am	"Investigation of Enhanced Mass Transport and Surface Barrier in Hierarchical Zeolites," Chun-Chih Chang, Andrew Teixeira, Chao Li and <b>Wei Fan</b> (426)	"Optimization of the Product Spectrum for 1-Pentene Cracking on ZSM-5 Using Single-Event Methodology: Two-Zone Reactor and Recycle Reactor," <b>Sebastian Standl</b> , Tassilo von Aretin, Markus Tonigold and Olaf Hinrichsen (156)	<b>Keynote:</b> "Novel Integrated Reactor Concepts for Hydrogen Production," <b>Martin van Sint Annaland</b> , Vincenzo Spallina, Ivo Roghair and Fausto Gallucci (190)
11:05 - 11:25 am	"Engineering Lactic Acid Oligomers to Develop Novel Functional Biomaterials," João Santos, Paula Ferreira, Dina Marques and <b>Cristina Gaudencio Baptista</b> (258)	"A Graph-Theoretic Framework for Model Reduction Using Time-Scale Analysis of Complex Reaction Networks," <b>Udit Gupta</b> , Aditya Bhan and Prodromos Daoutidis (397)	
11:25 - 11:45 am	"Designing Metal-Exchanged Zeolites for Non-Oxidative Methane Upgrade to Chemicals," <b>Ming-Feng Hsieh</b> , Lars Grabow and Jeffrey Rimer (402)	"HCK Modeling: Which Kind of Model to Choose: Continuous Lumping or Single Events?" <b>Jan Verstraete</b> , Benoit Celse, Julian Becker, Denis Guillaume, Luc Bertier and Victor Costa (45)	"Layered Composite Catalysts for Process Intensification in Syngas Production," Ummuhan Cimenler, Paul Kairys, James Othus, Babu Joseph, Tim Fawcett and <b>John Kuhn</b> (305)
11:45 - 12:00 pm	<b>Closing Remarks</b> (Aditya Bhan)	<b>Closing Remarks</b> (Paul Dauenhauer)	<b>Closing Remarks</b> (Dan Hickman)