

ISCRE28 16-19.6.2024

Presentations schedule

The topics of the conference are listed below and the sessions consisting of plenary and keynote lectures as well as oral presentations will be organized accordingly.

Plenary lectures	1
Keynote lectures	2
Fundamentals of chemical reaction engineering (F)	3
Bridging molecular modelling, thermodynamics and kinetics (B)	7
Multiphase reactors and new reaction media (M)	9
New reactor structures: from micro to milli and macro (N).....	11
Process dynamics and safety (D)	12
Process intensification in reaction engineering (P)	13
Reaction and bio-reaction engineering of renewables (R)	17
Reaction engineering crossing the boundaries (C).....	20
Education session: what to teach in the future (E)	22

Plenary lectures

Plenary 1 Room: 1 Monday 10:00-11:00

[Reactor Design and Scale-up for CO₂-free Manufacturing, CO₂ Capture and Utilization](#)

Professor Vemuri Balakotaiah (University of Houston)

Plenary 2 Room: 1 Tuesday 10:00-11:00

[Circular economy: sustainable aviation fuel from waste](#)

Dr. Carlo Perego

Plenary 3 Room: 1 Tuesday 12:00-13:00

[How can Magnetic Resonance Contribute to our Understanding of Reaction Engineering Processes?](#)

Professor Dame Lynn F. Gladden (University of Cambridge)

Plenary 4 Room: 1 Wednesday 10:00-11:00

[Improved provision of pure enantiomers by coupling separation, racemization and recycling processes](#)

Professor Andreas Seidel-Morgenstern*, Isabel Harriehausen, Jonathan Gaensch,(Max-Planck Institut Magdeburg) Karyna Oliynyk, Katja Bettenbrock, Heike Lorenz

Keynote lectures

Keynote 1 Room: 1 Monday 11:30-12:00

[Could you do more with segmented flow?](#)

Professor Claude de Bellefon, (CPE-Lyon)

Keynote 2 Room: 2 Monday 11:30-12:00

[Remote control of reaction-diffusion processes in drug delivery](#)

Professor Frantisek Stepanek (Vysoka Skola Chemicko-Technologicka, Prague)

Keynote 3 Room: 3 Monday 11:30-12:00

[Modelling-based catalytic bio-refining reaction engineering](#)

Professor Blaz Likozar (Kemijski Institut, Ljubljana)

Keynote 4 Room: 4 Monday 11:30-12:00

[Modelling and simulation of hydrogen reduction of iron ore in a direct reduction furnace](#)

Professor Henrik Saxen (Abo Akademi University)

Keynote 5 Room: 5 Monday 11:30-12:00

[Cyclically-integrated CO₂ capture and conversion into synthetic natural gas](#)

Prof. Luis Miguel Madeira (Universidade do Porto)

Keynote 6 Room: 1 Tuesday 11:30-12:00

[Application of CFD in chemical reaction engineering](#)

Professor Ivan Cornejo (Universidad Federico Santa Maria, Valparaiso CL)

Keynote 7 Room: 2 Tuesday 11:30-12:00

[Pioneering sustainable fuels and materials for a future beyond fossils](#)

Dr Andrea Gutierrez (UPM-Kymmene)

Keynote 8 Room: 3 Tuesday 11:30-12:00

[Continuous slurry hydroprocessing of biobased fast pyrolysis oil](#)

Dr Niklas Bergvall (RISE, Pitea)

Keynote 9 Room: 4 Tuesday 11:30-12:00

[Supercritical water reaction applied to biomass](#)

Prof. Juan Garcia Serna, (Universidad de Valladolid)

Keynote 10 Room: 5 Tuesday 11:30-12:00

[Multi-scale approach for the analysis and assessment of heat-exchanger monolith reactor dedicated to catalytic gas-liquid reactions](#)

Dr Carine Julcour (INP-ENSIACET Toulouse, CNRS)

Keynote 11 Room: 1 Wednesday 11:30-12:00

[Modelling of biomass refining processes with classical chemical reaction engineering methods - challenges and opportunities](#)

Professor Ville Alopaeus (Aalto University)

Keynote 12 Room: 2 Wednesday 11:30-12:00

[Harmony in Innovation: Integrating Sustainable Practices into Chemical Reaction Engineering](#)

Dr Pierdomenico Biasi (Casale)

Keynote 13 Room: 3 Wednesday 11:30-12:00

[Alkane dehydrogenation optimization by heat management in the Catofin process](#)

Dr Xander Nijhuis (SABIC)

Keynote 14 Room: 4 Wednesday 11:30-12:00

[New technologies for the removal of pharmaceuticals from waste waters](#)

Dr Soudabeh Saeid (California Institute of Technology Caltech, Pasadena CA)

Keynote 15 Room: 5 Wednesday 11:30-12:00

[Biofuels technologies and opportunities - Role of catalysis in refinery transformation](#)

Dr Ahmad Kalantar, (Neste)

Fundamentals of chemical reaction engineering (F)

F1 Room: 1 Monday 9.40-10:00

[Generalized Runaway Diagrams for Catalytic Reactors with Stacked Catalyst Activities](#)

Jingxian Zhang, Christopher Tighe, Klaus Hellgardt, Dominik Unruh, Rene' Bos*

F2 Room: 1 Monday 12:00-12:20

[Modeling of catalytic fixed-bed reactors: comparison of 1D and 3D particle-resolved simulations](#)

Akash Bhimrao Shirsath, Matthias Hettel, Eric Daymo, Steffen Tischer, Olaf Deutschmann

F3 Room: 1 Monday 12:20-12:40

[Redox kinetics for the low-temperature NH₃-SCR and N₂O formation over Cu-CHA catalysts](#)

Ramona Resmini, Nicola Usberti, Roberta Villamaina, Maria Pia Ruggeri, Djamel Bounechada, Andy York, Isabella Nova, Enrico Tronconi

F4 Room: 1 Monday 12:40-13:00

[Investigating the Reduction Half-Cycle of Standard SCR at Low and High Temperature: Influence of HTA and H₂O](#)

Nicole Daniela Nasello, Umberto Iacobone, Andrea Gjetja, Isabella Nova, Enrico Tronconi, Rohil Daya, Lai Wei, Hongmei An, Krishna Kamasamudram

F5 Room: 1 Monday 14:40-15:00

[Gaining Kinetic Insights into Knorr Pyrazole Synthesis via Transient Flow Experiments](#)

Fernando Vega-Ramon, Linden Schrecker, King Kuok (Mimi) Hii, Dongda Zhang

F6 Room: 1 Monday 15:00-15:20

[Hydrous Hydrazine decomposition over Rh/Al₂O₃ catalyst: CFD studies](#)

Panayiota Adamou, Silvio Bellomi, Eleana Harkou, Alberto Villa, Nikolaos Dimitratos, Achilleas Constantinou*

F7 Room: 1 Monday 15:20-15:40

[Jadeite Hydrogen from catalytic decomposition of non-methane hydrocarbons](#)

Bofan Li, Ruijing Jiao, Chaojie Cui Weizhong Qian, Fei Wei, Yong Jin

F8 Room: 1 Monday 15:40-16:00

[A Lagrangian Approach To Predict The Flow Behaviour And Residence Time Distribution In Chemical Reactors](#)

Mohammad Asif and Carlos A. Grande

F9 Room: 1 Monday 16:00-16:20

[Influence of the electrochemical cell configuration over the stability of tunable and stable production of syngas for efficient coupling with hydroformylation reaction.](#)

Mario Gallone, Alessia Fortunati, Federico Dattila, Simelys Hernandez

F10 Room: 1 Monday 16:20-16:40

[Kinetic and mechanistic implications of CO₂-assisted ethane dehydrogenation over Fe-based catalysts](#)

Maria Tasioula, Stavros A. Theofanidis, Alessandro Longo, Angeliki A. Lemonidou

F11 Room: 1 Monday 16:40-17:00

[A model of bubble coalescence in the presence of a nonionic surfactant](#)

Yuelin Wang, Tiefeng Wang

F12 Room: 1 Monday 17:00-17:20

[Iron oxide reduction using hydrogen as green reducing agent](#)

Antonio D'Angelo*, E. Salucci, V. Russo, H. Gre'nman, H. Saxe'n

F13 Room: 1 Monday 17:20-17:40

[Revealing the role of parallel reaction pathways during CO₂ hydrogenation to methanol over Cu-ZrO₂ and Cu-ZnO catalysts at low pressure](#)

George J. Fulham Ewa J. Marek

F14 Room: 1 Monday 17:40-18:00

[A new Monte Carlo-based approach for addressing stiff chemical kinetics.](#)

Abderrahim Sahim, Marion Carrier, Mouna El Hafi, Simon Eibner, Yaniss Nyffenegger-Pere, Ste'phane Blanco, Richard Fournier

F15 Room: 1 Monday 18:00-18:20

[Fixed Bed Heat Transfer Parameter Estimatio - A New Look at an Old Problem](#)

Anthony G. Dixon

F16 Room: 1 Monday 18:20-18:40

[Modelling PS pyrolysis combining the Method of Moments and full chemistry simulations](#)

Daniel Withoeck, Florence Vermeire, Onur Dogu, Oguzhan Akin, Robin John Varghese, Steven De Meester, Kevin Van Geem, Paul Van Steenberge

F17 Room: 1 Monday 18:40-19:00

[CFD Simulations for the Methanation of CO₂ in Packed Bed Reactor Using Dual Function Materials](#)

Eleana Harkou, Anastasios I. Tsiotsias, Nikolaos D. Charisiou, Maria A. Goula, George Manos and Achilleas Constantinou

F18 Room: 1 Monday 19:00-19:20

[Ozone-assisted Catalytic Oxidation \(OzCO\) of Methane: Impact of the Cu/Mn Ratio in Bimetallic Hydroxyapatite-supported Catalysts](#)

Reza Monjezi, Alexandra Bouriakova, Karen Leus, Philippe M. Heynderickx, Pascal Van Der Voort, Rino Morent, Joris W. Thybaut

F19 Room: 1 Monday 19:20-19:40

[Probing pellet-scale reaction-diffusion phenomena in a trickle bed reactor using operando magnetic resonance spectroscopic imaging](#)

Scott V. Elgersma, Jordan A. Ward-Williams, Qingyuan Zheng, Jack Davies, Andrew J. Sederman, Michael D. Mantle, Constant M. Gue'don, Lynn F. Gladden

F20 Room: 1 Monday 19:40-20:00

[Kinetic Analysis of Ammonia Cracking over Ru-based Catalysts for CO_x-free Hydrogen Production](#)

Yi Qiu, Federico Sascha Franchi, Nicola Usberti, Alessandra Beretta

F21 Room: 1 Tuesday 9:00-9:20

[Comparison of machine learning based hybrid modelling methodologies for dynamic simulation of chemical reaction networks](#)

Harry Kay, Fernando Vega-Ramon, Dongda Zhang

F22 Room: 1 Tuesday 9:20-9:40

[Modeling of Fischer-Tropsch fixed-bed reactors: A comparison between pseudo-homogeneous and heterogeneous approaches](#)

Egydio Terziotti Neto, Rita M. B. Alves, Reinaldo Giudici

F23 Room: 1 Tuesday 9:40-10:00

[Methane pyrolysis on Fe-Al₂O₃ catalyst for turquoise H₂ production: a combined experimental and modeling study on reaction and deactivation kinetics](#)

Davide Cafaro, Chiara Negri, Veronica Piazza, Marco Orsenigo, Riccardo Colombo, Lidia Castoldi, Gianpiero Groppi, Matteo Maestri, Alessandra Beretta

F24 Room: 1 Tuesday 14:40-15:00

[Enhancing Gasoline Production from CO₂ Hydrogenation through optimizing ZnO-ZrO₂ Catalysts in tandem with HZSM-5 zeolite](#)

Onintze Parra, Ander Portillo, Javier Erena, Ainara Ateka

F25 Room: 1 Tuesday 15:00-15:20

[Deactivation as Key Factor to Understand CO₂ to Olefins Process over In₂O₃ ZrO₂/SAPO 34 Tandem Catalyst](#)

Ander Portillo, Onintze Parra, Arancha Saiz, Javier Erena, Ainara Ateka

F26 Room: 1 Tuesday 15:20-15:40

[Selective Hydrogenation of C₈ Aromatics in Pyrolysis Gasoline \(PYGAS\) on Ni₃CuSn_{0.3}/SiO₂ Catalyst: Reaction Kinetics and Reactor Modeling](#)

Guozheng Ji, Wei Chen, Zhiming Zhou

F27 Room: 1 Tuesday 15:40-16:00

[Power-to-Gas: Thermally Stable Multi-Tubular CO₂ Methanation Reactor Design](#)

Stepan Spatenka, Zbigniew Urban

F28 Room: 1 Tuesday 16:00-16:20

[Propylene polymerization: comparison between batch and continuous operation using process simulation](#)

Tahyna B. Fontoura and Maria Giuliana F. Torraga

F29 Room: 1 Tuesday 16:20-16:40

[Accelerating Kinetic Model Discovery by Global Reaction Neural Networks with Embedded Stoichiometry and Equilibrium](#)

Tim Kircher, Felix A. Doppel, Martin Votsmeier

F30 Room: 1 Tuesday 16:40-17:00

[A fundamental study of methane pyrolysis on Fe-Al₂O₃ catalyst in a fluidized bed reactor: a combined experimental and CFD investigation](#)

Marco Orsenigo, Davide Cafaro, Veronica Piazza, Chiara Negri, Lidia Castoldi, Gianpiero Groppi, Matteo Maestri, Alessandra Beretta

F31 Room: 3 Tuesday 16:00-16:20

[Pr-doped Pd/CeO₂ catalysts with enhanced CH₄ oxidation activity: unveiling the promoting role of Pr through advanced spectroscopy](#)

Enrico Sartoretti, Sabrina Ballauri, Micaela Castellino, Elena Simone, Marco Armandi, Marco Piumetti, Debora Fino, Nunzio Russo, Samir Bensaid

F32 Room: 3 Tuesday 16:20-16:40

[Experimental insights on the scaling of single pellet string reactors based on the CO₂ methanation](#)

Tabea Gros, Christian Bauer, Tim Kratky, Olaf Hinrichsen

F33 Room: 3 Tuesday 16:40-17:00

[In situ and operando investigation of the reactivity of C₃N₄-supported Ni and Cu single-atom catalysts during hydrogenation](#)

Nicolo' Allasia, Giovanni Di Liberto, Lorenzo Mino, Gianfranco Pacchioni, And Gianvito Vile'

F34 Room: 1 Wednesday 9:00-9:20

[Composition and Reaction Modeling of Hydroconversion of Lignins](#)

Maria Lopez Abelairas, Luis P. De Oliveira, Nadege Charon, Jan J. Verstraete

F35 Room: 1 Wednesday 9:20-9:40

[Theoretical Insights in the Heat and Mass Transfer Limitations in Single Pellet String Reactors of different Lengths](#)

Christian Bauer, Tabea Gros, Olaf Hinrichsen

F36 Room: 1 Wednesday 9:40-10:00

[In situ axially-resolved measurement of CO intermediate product formation in CO₂ methanation](#)

Gerrit Kuechen, Vinzent Olszok, Alfred P. Weber, Thomas Turek

F37 Room: 1 Wednesday 12:00-12:20

[Cyclic carbonates through a green route: kinetic and mass transfer modelling](#)

Wander Y. Perez-Sena, Fabrizio Ciccarelli, Kari Eranen, Ananias Medina, Martino Di Serio, Johan Warna, Se'bastien Leveneur, Vincenzo Russo, Tapio Salmi

F38 Room: 1 Wednesday 12:20-12:40

[Transient reaction kinetics for CO hydrogenation: Combining periodic experimentation with micro-kinetic modeling](#)

Max Gassler, Simon Hermann, Robert Guettel

F39 Room: 1 Wednesday 12:40-13:00

[In-Situ Study on Thermal Behaviors of Coal Particles Based on Entrained-flow CWS Gasification](#)

Yan Gong, Hantao Lu, Qinghua Guo, Fuchen Wang, Guangsuo Yu

F40 Room: 1 Wednesday 14:40-15:00

[Chemical Reaction Neural Networks for Discovery of Microkinetic Parameters for Heterogeneous Reaction Networks - A Training Strategy](#)

Hannes Stagge, Robert Guttel

F41 Room: 1 Wednesday 15:00-15:20

[Three-dimensional CFD simulation of two-phase flow and electric field in an alkaline electrolyzer](#)

Jinhao Bai, Xiaoping Guan, Qiushi Xu, Ning Yang

F42 Room: 1 Wednesday 15:20-15:40

[Experimental quantification of local counterdiffusion effects on the gas-liquid mass transfer performance on a microscale](#)

Lotta Kursula, Zeynep Percin, Felix Kexel, Paul Bubenheim, Marko Hoffmann, Koichi Terasaka, Andreas Liese, Michael Schlueter

F43 Room: 1 Wednesday 15:40-16:00

[PyKineMod: A Software Tool for Automated Modeling of Reaction Systems from Data](#)

Vignesh Kumar, V Manokaran, Sridharakumar Narasimhan, Nirav Bhatt

F44 Room: 1 Wednesday 16:00-16:20

[Catalytic dehydrogenation of light alkanes to high value chemicals](#)

Sayani C. Thakur, Asit K. Das, Sanjay M. Mahajani

F45 Room: 1 Wednesday 16:20-16:40

[Forced Dynamic Operation: Propene Ammoxidation over Bismuth Molybdate-based Catalysts](#)

Zhuoran Gan, James Brazdil, Lars Grabow, William Epling

Bridging molecular modelling, thermodynamics and kinetics (B)

B1 Room: 2 Monday 12:00-12:20

[Potential and limits of thermodynamic rate approaches to hydroformylation: A case study for modelling solvent effects on reaction kinetics for gas/liquid reactions](#)

Martin Gerlach, Fabian Huxoll, Andreas Seidel-Morgenstern, Gabriele Sadowski, Christof Hamel

B2 Room: 2 Monday 12:20-12:40

[Kinetic Modeling of Plastic Waste Catalytic Cracking over Phosphorous-Modified Mesoporous ZSM-5: an Isooctane Model Compounds Study](#)

Yannick Ureel, Anas Jamil Abdulrahman, Oguzhan AkÄ±n, Maarten K. Sabbe, Kevin M. Van Geem

B3 Room: 2 Monday 12:40-13:00

[Propene epoxidation over titanium silicate catalyst a new understanding](#)

Matias Alvear, Faysal Ibrahim, Jadiel Lopez-Gonzalez, Tapio Salmi, Ive Hermans

B4 Room: 2 Monday 14:40-15:00

[Understanding the synergistic effects of Si/Al and structure of zeolites for isobutane alkylation based on experiments and MD simulations.](#)

Bihong Li, Weizhong Zheng*, Weizhen Sun*, and Ling Zhao

B5 Room: 2 Monday 15:00-15:20

[Accounting for entropy in reactor-level simulations of ethylene epoxidation: does it really matter?](#)

Jurij Golobic, Andraz Pavlisic, Miha Grilc, Anders Hellman, Blaz Likozar, Matej Hus*

B6 Room: 2 Monday 15:20-15:40

[Photoreforming of organics for hydrogen production: Microkinetic analysis and experimental validation](#)

Ruiman Ma, Matthew Wigglesworth, Marica Muscetta, Natalia Martsinovich, Sergio Vernuccio

B7 Room: 2 Monday 15:40-16:00

[Microkinetic modelling of isosynthesis over monoclinic zirconia catalyst](#)

Juha Lehtonen, Kristian Chen, Bhumi Baraiya, Krista Kuutti, Ville Korpelin, Niko Heikkinen, Laura Keskiivali, Matti Reinikainen, Karoliina Honkala

B8 Room: 2 Monday 16:00-16:20

[Machine Learning of Rate Coefficients of SNAr Reactions through rapid Quantum Chemical Property Prediction](#)

Lowie Tomme, Florence Vermeire, Christian Stevens, Kevin M. Van Geem

B9 Room: 2 Monday 16:20-16:40

[Carbon dioxide capture with choline-based DESs solvents](#)

Gabriela Ciriaco Villegas, Alain Ledoux, Lionel Estel, Arnaud Delanney

B10 Room: 2 Monday 16:40-17:00

[Property Estimations with Chemical Accuracy for Industrially Relevant Molecules Using Geometric Deep Learning](#)

Maarten R. Dobbelaere, Istvan Lengyel, Christian V. Stevens, Kevin M. Van Geem

B11 Room: 2 Monday 17:00-17:20

[Catalytic semi-hydrogenation of acetylene under front end conditions - Kinetic measurement and modeling](#)

Leonhard Iser, Marcus Rose

B12 Room: 2 Monday 17:20-17:40

[Unconventional coke composition originating from Catalytic fast pyrolysis model reaction](#)

Nathan Pichot, Thomas Lemaitre, Nourrdine Chaouati, Yannick Pouilloux, Anthony Dufour, Ludovic Pinard

B13 Room: 2 Monday 17:40-18:00

[Combining Metadynamics and Mean Force Integration for studying chemical reactions in solution: an application to backbiting of poly-Butyl Acrylate.](#)

Francesco Serse, Antoniu Bjola, Matteo Salvalaglio, Matteo Pelucchi

B14 Room: 2 Monday 18:00-18:20

[Mechanistic insights into r-WGS reaction on Rh and Pt via a combined experimental and structure-dependent microkinetic analysis](#)

Gabriele Spano, Luca Nardi, Gabriele Contaldo, Raffaele Cheula, Chiara Negri, Matteo Maestri*

B15 Room: 2 Monday 18:20-18:40

[CO hydrogenation conversion driven by micro-environments of active sites over iron carbide catalysts](#)

Nan Song, Xingxing Li, Ebtihal Abograin, Wenyao Chen, Junbo Cao, Jing Zhang, De Chen, Xuezhi Duan, Xingguo Zhou

B16 Room: 2 Monday 18:40-19:00

[Forced dynamic \(operando\) reactors to understand the structure and deactivation of CO₂ dry reforming over the NiZn alloy catalyst](#)

Xueqin Bai, Vijay K. Velisoju, Bambar Davaasuren, Pedro Castano

B17 Room: 2 Monday 19:00-19:20

[Modeling HDPE thermal pyrolysis](#)

Laura Pires da M. Costa, Julian Garcia Cardenas, Oguzhan Akin, Robin John Varghese, Istvan Lengyel, Kevin Van Geem

B18 Room: 2 Monday 19:20-19:40

[Selective CO₂ absorption in bioreactors based on molecular modelling, thermodynamics, kinetics and experiments](#)

Ping Wu* and Juei-Yu Chiu

B19 Room: 2 Monday 19:40-20:00

[Multiphysics modelling and Electrochemical Impedance Spectroscopy as a tool for predicting Solid Oxide Fuel Cells performance and rational cell design](#)

Andrea Pizzato, Paolo Canu

Multiphase reactors and new reaction media (M)

M1 Room: 5 Monday 9:40-10:00

[Potential of producing medium chain dicarboxylic acids from kerogen in kukersite in a continuous-flow oxidation reactor](#)

Maria Reinaas*, Kristiina Kaldas, Kati Muldma, Jaan Mihkel Uustalu, Villem Odner Koern, Kaarel Siirde, Estelle Silm, Birgit Mets, Mariliis Kimm, Kristi Rouk, Margus Lopp

M2 Room: 5 Monday 12:00-12:20

[Modeling of a heat-integrated biomass downdraft gasifier: Influence of feed moisture and airflow](#)

Houda M. Haidar, James W. Butler, Samira Lotfi, Anh-Duong Dieu Vo, Peter Gogolek, Kimberley McAuley

M3 Room: 5 Monday 12:20-12:40

[Solid Foam Catalysts Applied to Sugar Hydrogenation: Towards Continuous Production of Sugar Alcohols](#)

German Araujo-Barahona, Alberto Goicoechea-Torres, Maria Ciaramella, Miriam Cavaliere, Kari Eranen, Dmitry Y. Murzin, Juan Garcia-Serna, Vincenzo Russo, Tapio Salmi

M4 Room: 5 Monday 12:40-13:00

[Catalytic sugar oxidation in continuous packed bed reactor: effect of liquid flow rate](#)

Mouad Hachhach, Vincenzo Russo, Irina Simakova, Kari Eranen, Dmitry Yu. Murzin, Tapio Salmi

M5 Room: 5 Monday 18:00-18:20

[Study of hydrodynamics and CO₂ adsorption in multistage fluidised beds via computational and experimental investigations.](#)

Haile Jose, Swapna Rabha

M6 Room: 5 Monday 18:20-18:40

[Trajectory-Based Breakup Modelling for Dense Bubbly Flows](#)

Christian Weiland, Alexandra von Kameke, Michael SchlÄ¼ter

M7 Room: 5 Monday 18:40-19:00

[Integrated CO₂ Capture and Catalytic Methanation over Dual Function Materials in a Lab-Scale Interconnected Fluidized Bed System](#)

Fiorella Massa, Elisabetta Maria Cepollaro, Stefano Cimino, Antonio Coppola, Fabrizio Scala

M8 Room: 5 Monday 19:00-19:20

[Computational fluid dynamic \(CFD\) of the Liquid organic hydrogen carrier \(LOHC\) dehydrogenation reactor and furnace](#)

Nihal Rao, Ashwin W Patwardhan

M9 Room: 5 Monday 19:20-19:40

[Breakthrough in epoxidation of vegetable oils: from semibatch to continuous technology](#)

Tommaso Cogliano, Kari Eranen, Riccardo Tesser, Martino DiSerio, Vincenzo Russo, Tapio Salmi

M10 Room: 5 Monday 19:40-20:00

[From Lab to Pilot: Enginzyme's Developments in Enzymatic Glycosylation](#)

Adriana Freites Aguilera

M11 Room: 5 Tuesday 9:00-9:20

[Exploiting two- and three phase flow for photochemical transformations: An experimental and modeling study](#)

Simon Kuhn

M12 Room: 5 Tuesday 9:20-9:40

[Model Reduction Analysis of Activated Sludge Models \(ASMs\) using the concept of Extent of Reaction, Mass Transfer and Flow](#)

Ishwarya R, Dr. Sridharakumar Narasimhan, Dr. Nirav P Bhatt

M13 Room: 5 Tuesday 9.40-10:00

[The Influence of Geometric Parameters of 3D Structured Bed on the Hydrodynamic Characteristics of the Trickle-Bed Reactor](#)

Katerina Nyklickova, Petr Stavarek, Jaromir Havlica, Anna Kokavcova

M14 Room: 5 Tuesday 14:40-15:00

[Energetic transition and CO₂ abatement: catalytic methane pyrolysis for hydrogen production](#)

Piercosimo Vedele, Enrico Sartoretti, Fabio Salomone, Chiara Novara, Fabrizio Giorgis, Massimiliano Antonini, Samir Bensaid

M15 Room: 5 Tuesday 15:00-15:20

[Integrated Absorption - Adsorption Process for SO₂ Capture Using Anion-Exchange Resin](#)

Stefan Stefanov, Apostol Apostolov, Daniela Dzhonova-Atanasova*, Stela Panyovska, Elena Razkazova-Velkova

M16 Room: 5 Tuesday 15:20-15:40

[NMR Studies of the Phase Behaviour of Fischer-Tropsch Reaction Product Mixtures Confined in Mesoporous Media](#)

Jack H. Williams, Qingyuan Zheng, Leonard R. van Thiel, Mick D. Mantle, Andrew J. Sederman, Timothy A. Baart, G. Leendert Bezemer, Constant M. Guedon, Lynn F. Gladden*

M17 Room: 5 Tuesday 15:40-16:00

[Oxidation Reactor Scale-up: Translating Pilot Plant to Commercial Scale through Modeling](#)

Bryan A Patel, Travis Reine, Seth Washburn, Jihad Dakka

M18 Room: 5 Tuesday 16:00-16:20

[Solid Phase Flow Dynamics in Circulating Fluidized Bed Riser at Two Scales Using Radiotracer Technique](#)

Trilokpati Tribedi, Pankaj Tiwari, Harish Jagat Pant, Rajesh Kumar Upadhyay

M19 Room: 5 Tuesday 16:20-16:40

[Gas Flow Modulation: a suitable approach for axially-resolved measurements of axial gas dispersion in bubble column reactors.](#)

Sara Marchini, Andre Bieberle, Markus Schubert, Uwe Hampel

M20 Room: 5 Tuesday 16:40-17:00

[Simulation of Lagrangian Sensor Particles as Resolved Particles in an Industrial Bioreactor through Lattice-Boltzmann Large Eddy Simulations](#)

Ryan Rautenbach, Sebastian Hofmann, Lukas Buntkiel, Jonas Barczyk, Sebastian Reinecke, Marko Hoffmann, Ralf Takors, Uwe Hampel, Michael Schluter

New reactor structures: from micro to milli and macro (N)

N1 Room: 3 Tuesday 9:00-9:20

[Plasma assisted NH₃ synthesis over plasmonic titanium oxynitride/titania thin films](#)

Yuyan Gong Pradeep Lamichhane Evgeny Rebrov

N2 Room: 3 Tuesday 9:20-9:40

[A study of gas-liquid flows through random open-cell solid foams using structure-resolved simulations](#)

Aniket S. Ambekar, E.A.J.F. Peters, Olaf Hinrichsen, Vivek V. Buwa, J.A.M. Kuipers

N3 Room: 3 Tuesday 9.40-10:00

[Multiphase mixing performance characterization of oscillatory baffled reactors applied to the hydrometallurgical separation of cobalt and nickel](#)

Pieter Adriaenssens, Jonas Van Olmen, Jinu J. John, Koen Binnemans, Tom Van Gerven

N4 Room: 3 Tuesday 14:40-15:00

[Eccentricity effects in a Joule heated monolithic reactor for Steam Methane Reforming](#)

Roberta Castiglione, Matteo Ambrosetti, Gianpiero Groppi, Enrico Tronconi

N5 Room: 3 Tuesday 15:00-15:20

[Experimental investigation of a directly electrified Si-SiC open cell foam packed with Rh-based catalytic pellets for intensified methane steam reforming.](#)

Federico Nicolini, Matteo Ambrosetti, Alessandra Beretta, Gianpiero Groppi, Enrico Tronconi

N6 Room: 3 Tuesday 15:20-15:40

[Reactive Distillation Assisted Electronic Grade Silane Gas Production: From Basic Research to Industrial Applications](#)

Xue-Gang Li, Wen-De Xiao

N7 Room: 3 Tuesday 15:40-16:00

[Flow characteristics of a novel helical liquid-bridge flow at different scales](#)

Liang Yuan, Haifeng Cong, Xingang Li

N8 Room: 3 Wednesday 14:40-15:00

[Catalytic Structures for CO₂ Conversion to Methanol using Structure-Resolved CFD Simulations](#)

Kuldeep Singh, Ankita Kumari, Olaf Hinrichsen, Vivek V. Buwa

N9 Room: 3 Wednesday 15:00-15:20

[Scale-Up of a Gas Diffusion Electrode CO₂ Electrolyzer for Formate Production](#)

Jose Antonio Abarca, Axel Arruti, Esther Santos, Guillermo Diaz-Sainz, Angel Irabien

N10 Room: 3 Wednesday 15:20-15:40

[Revolutionizing Polymer Brush Synthesis with Microfluidic Magic: Microfluidic Driven Controlled Synthesis of Finely Tailored Polymer Brushes via SI-ATRP.](#)

Volkan Cirik, Marke'ta Vrabcova, Monika Spasovova, Nicholas Scott Lynn Jr.

N11 Room: 3 Wednesday 15:40-16:00

[A novel electric reactor for methane to acetylene conversion](#)

Shauvik De, Alexander P. van Bavel, Rene Bos

N12 Room: 3 Wednesday 16:00-16:20

[A miniaturized Taylor Couette reactor for continuous flow enzymatic process development](#)

Georgios Gkogkos, Yu Wang, Helen Hailes, Gary Lye, Asterios Gavriilidis

N13 Room: 3 Wednesday 16:20-16:40

[Enhancing methanol synthesis by continuous in-situ adsorption of reaction products](#)

Chiara Berretta, Oliver Krocher, Tilman Schildhauer

N14 Room: 3 Wednesday 16:40-17:00

[Fundamentals and Applications of Mechanocatalytic Processes](#)

Andrew W. Tricker, Yuchen G. Chang, Kinga Gotabek, Van Son Nguyen, Anuluwatobi Osibo, Karoline L. Hebisch, Erin V. Phillips, Jacob A. DeWitt, Carsten Sievers

Process dynamics and safety (D)

D1 Room: 5 Monday 14:40-15:00

[Catalyst memory effects during mode switches in hydrotreaters](#)

Jacob Venuti Bjorkman, Marcus Karlsson, Tallal Belkheiri, Lars J. Pettersson, Efthymios Kantarelis

D2 Room: 5 Monday 15:00-15:20

[Dynamic electrification toward sustainable and enhanced catalysis](#)

Rucha Railkar, Nefeli Kamarinopoulou, and Dionisios Vlachos*

D3 Room: 5 Monday 15:20-15:40

[How benefits could be the use of reaction calorimeter in chemical reaction engineering?](#)

Sebastien Leveneur

D4 Room: 5 Monday 15:40-16:00

[Online Model health Monitoring and Drift correction using NIR spectroscopy and Delayed Measurements in Bioreactors](#)

Keerthana C, Nirav P Bhatt, Guhan Jayaraman

D5 Room: 5 Monday 16:00-16:20

[Integrated Fuel Cell Systems for Rail Transport: Design and Optimisation](#)

Maria Portarapillo, Augusto Bellucci Sessa, Almerinda Di Benedetto

D6 Room: 5 Monday 16:20-16:40

[Beyond NaTECH Risk: Safety and Resilience in Hythane Transport Infrastructure](#)

Elena Capasso, Andrea Di Domenico, Maria Portarapillo, Almerinda Di Benedetto

D7 Room: 5 Monday 16:40-17:00

[Decarbonization of hydrogen supply chain via Electrifying Endothermic Processes](#)

Ram R. Ratnakar

D8 Room: 5 Monday 17:00-17:20

[Characterization of migration and enrichment of Mn, Zn and Sr trace elements in coal-water slurry gasification process](#)

Xingjun Wang, Weicheng Wang, Qinghua Guo, Guangsuo Yu, Fuchen Wang

D9 Room: 5 Monday 17:20-17:40

[Haber-Bosch 2.0 - Exploring Load-Flexible Ammonia Synthesis via Polytropic Fixed-Bed Reactors](#)

Lukas Gottheil, Jens Bremer

D10 Room: 5 Monday 17:40-18:00

[Dynamic tracer method for the determination of effective liquid-phase diffusion coefficients and adsorption in continuous packed columns](#)

Tapio Salmi, Tanguy Flory, Wander Perez Sena, Kari Eranen, Christoph Schmidt, Johan Warna

Process intensification in reaction engineering (P)

P1 Room: 3 Monday 9.40-10:00

[Light Olefin Production via Catalytic, Melt, Electrified Pyrolysis of Polyethylene](#)

Jacqueline Ngu, Esun Selvam, Arun Sundaramoorthy, Pavel Kots, Dionisios G. Vlachos*

P2 Room: 3 Monday 12:00-12:20

[Low-Temperature Ammonia Decomposition using Cs-Ru/CeO₂ Catalyst](#)

Gaetano Anello, Luca Di Felice, Fausto Gallucci

P3 Room: 3 Monday 12:20-12:40

[Low-carbon hydrogen production via reactive intensification technologies Rational design of materials](#)

Diana Iruretagoyena, Paul Fennell, Ronny Pini, Nilay Shah

P4 Room: 3 Monday 12:40-13:00

[Intensified hydrogenation process via catalytic chemistry and engineering](#)

Yutao Ding, Chong Peng*

P5 Room: 3 Monday 14:40-15:00

[Intensification of zinc dithionite production: from a batch to a mesofluidic reactor.](#)

Jean-Luc Hoxha, Mathurin Grogna, Dominique Toye

P6 Room: 3 Monday 15:00-15:20

[High throughput screening of ionic liquids to enhanced catalytic performance of H₂SO₄-catalyzed C₄ alkylation based on multi-scale simulations.](#)

Weizhong Zheng Zhihong Ma Weizhen Sun Ling Zhao

P7 Room: 3 Monday 15:20-15:40

[Electrifying Ethanol Dehydration for Emission-free Ethylene Production](#)

Emre Turan (Presenting author) , Robert Dieckmann, Michael Geske, Raoul Naumann D'Alnoncourt, Michael Bender, Benjamin Frank, Johannes Bode, Frank Rosowski

P8 Room: 3 Monday 15:40-16:00

[Assessing industrial-scale H₂SO₄-catalyzed C₄ Alkylation enhanced by novel \[N₁,1,1,1\]\[C₁₀SO₄\] additives based on a complex kinetic model](#)

Zhihong Ma Weizhong Zheng Weizhen Sun Ling Zhao

P9 Room: 3 Monday 16:00-16:20

[Sustainable hydrogen through decomposition of renewable ammonia: De-centralized supply applying micro-structured heat-exchangers and novel catalyst technology.](#)

Gunther Kolb, Jonas Schramm, Christian Hofmann, Tobias Weissenberger, Martin Wichert

P10 Room: 3 Monday 16:20-16:40

[Printing of microscopic POCS from copper using scan line patterning for the intensification of gas phase reactors](#)

Alexander Limper, Lukas Portheine, Anselm Brodersen, Francesca Zaio, Robert Keller, Mathias Wessling, Alessandra Beretta, Gianpiero Groppi, Matteo Ambrosetti, John Linkhorst, Enrico Tronconi

P11 Room: 3 Monday 16:40-17:00

[Low-carbon H₂ production via electrified steam reforming of biogas in conductive structured reactors](#)

Giulia Ferri, Matteo Ambrosetti, Alessandra Beretta, Gianpiero Groppi, Enrico Tronconi

P12 Room: 3 Monday 17:00-17:20

[Comparative Evaluation of Reactor Configurations with Intensified Heat Transport for Heterogeneously Catalyzed Endothermic Reactions](#)

Mira Zallmann and Hannsjorg Freund

P13 Room: 3 Monday 17:20-17:40

[Novel Annular Jet Reactor for Direct Conversion of Oligomers to Olefins and Aromatics with Pathway to Carbon Neutrality](#)

Sreekanth Pannala, Byeongjin Baek, Mike Mier, David Robichaud, Lei Chen, Rethesh VM, Balamurali Nair, Vladimir Shtern, Navin Asthana, and David West

P14 Room: 3 Monday 17:40-18:00

[CPFD Simulation of Sorption Enhanced Gasification in a Pressurized Fluidized Bed System](#)

Alessandro Antonio Papa, Armando Vitale, Umberto Pasqual Laverdura, Andrea Di Carlo

P15 Room: 3 Monday 18:00-18:20

[Evaluation of the Integration of Direct Air Capture and Methanation Processes.](#)

Mattia Galanti, Francesco Sabatino, Ivo Roghair, Martin Van Sint Annaland

P16 Room: 3 Monday 18:20-18:40

[Promotion of heat transfer in compact Fischer-Tropsch tubular reactors using structured conductive internals: a pilot scale study](#)

Martino Panzeri, Carlo Giorgio Visconti, Gianpiero Groppi, Enrico Tronconi

P17 Room: 3 Monday 18:40-19:00

[Polymer fouling in tubular reactors for radical polymerizations](#)

Stefan Welzel, Ulrich Nieken

P18 Room: 3 Monday 19:00-19:20

[Simulated Moving Bed Reactor to Valorise Glycerol into Solketal: Coupling Green Chemicals and Process Intensification](#)

Isabella Correa, Rui P. V. Faria, Alirio E. Rodrigues

P19 Room: 3 Monday 19:20-19:40

[Steam-Methane Reforming on Joule Heated Ni-Coated Metal Wires](#)

Elmer B. Ledesma, Meghana Idamakanti, Praveen Bollini, Ram R. Ratnakar, Michael P. Harold

P20 Room: 3 Monday 19:40-20:00

[Methanol synthesis in a fluidized bed reactor with continuous addition/removal of sorbent](#)

R. Ciercoles, J. Lasobras, J. Soler, J. Herguido, M. Menendez

P21 Room: 2 Tuesday 9:00-9:20

[Continuous Synthesis of Bio-Inspired Silica using Fluidic Devices](#)

Chinmay A. Shukla, Roja P. Moghadam, Siddharth V. Patwardhan, Vivek V. Ranade

P22 Room: 2 Tuesday 9:20-9:40

[Comprehensive Thermodynamic Analysis and Simulation of Electrified Modular Reactors for Bi-reforming of Methane](#)

Collins Don-Pedro, Ram R. Ratnakar, Sumana Chenna, Vemuri Balakotaiah

P23 Room: 2 Tuesday 9:40-10:00

[Microwave-Heated Carbon-Coated Monolithic Reactor for Steam Reforming of Ethanol](#)

Merve SarÄ±yer, Naime AslÄ± Sezgi, Timur Dogu

P24 Room: 2 Tuesday 14:40-15:00

[A multifunctional reactor for CO₂ capture and conversion to CH₄ - Effect of pressure and sorbent/catalyst ratio](#)

Joana A. Martins, Alirio E. Rodrigues, Luis M. Madeira

P25 Room: 2 Tuesday 15:00-15:20

[Improving selectivity in ethylene oxide production by nano-structuring catalysts in chemical looping epoxidation](#)

Alexander Harrison, Joseph Gebers, Ewa Marek

P26 Room: 2 Tuesday 15:20-15:40

[Direct Joule heating of NH₃ catalytic cracking in packed POCS: kinetic study and reactor design](#)

Federico Sascha Franchi, Matteo Ambrosetti, Nicola Usberti, Alessandra Beretta, Gianpiero Groppi, Enrico Tronconi

P27 Room: 2 Tuesday 15:40-16:00

[Exploring carbon dioxide methanation: experimental insights and simulation strategies](#)

Matteo Tommasi, Alice Gramegna, Chiara Picilli, Gianguido Ramis, Ilenia Rossetti

P28 Room: 2 Tuesday 16:00-16:20

[Development of a multi-zone, multi-feed adiabatic reactor framework optimization for the exothermic oxidative coupling of methane reaction](#)

Murtaza Ali Khan, Mamoun Al-Rawashdeh, Patrick Linke

P29 Room: 2 Tuesday 16:20-16:40

[Plasma assisted photocatalytic CO₂ decomposition in a micro DBD reactor](#)

Deema Khunda, Sirui Li, Evgeny Rebrov

P30 Room: 2 Tuesday 16:40-17:00

[One-pot menthol synthesis from citronellal on polymer supported catalyst](#)

Micol Lubian, Francesco Sandri, Paolo Centomo, Marco Zecca, Paivi Maki-Arvela, Dmitry Murzin, Tapio Salmi

P31 Room: 2 Wednesday 9:00-9:20

[Coupling of spatially and temporally resolved reaction kinetic data in a channel type reactor with a novel kinetic model describing transient reactor behavior](#)

David Kellermann, Timo Engl, Michael Rubin, Hannsjoerg Freund

P32 Room: 2 Wednesday 9:20-9:40

[Catalytic plate reactor utilizing laser induced nanofoams as catalyst support for the continuous dehydrogenation of perhydro benzyltoluene.](#)

Phillip Nathrath, Tamara Hein, Jannis Muller-Ebhardt, Eike Hubner, Peter Wasserscheid, Patrick Schuhle

P33 Room: 2 Wednesday 9.40-10:00

[Demonstration and scale-up of autothermal oxidative coupling of methane](#)

David West, Vemuri Balakotaiah, Tian Gu, Pankaj Gautam, Robert Broekhuis, Jonathan Banke, Hector Perez, Nathon Caton, Hoang Nguyen

P34 Room: 2 Wednesday 12:00-12:20

[Intensified and Electrified Monophasic and Biphasic Plasma Microreactors for the Production of Chemicals](#)

Fabio Cameli, Panagiotis Dimitrakellis, Nefeli Kamarinopoulou, Darien Nguyen, Dionisios G. Vlachos

P35 Room: 2 Wednesday 12:20-12:40

[Study Of Liquid Flow Field in Dual Impeller Gas-Liquid Stirred Tank Reactor](#)

Roushni Kumari, Raghvendra Gupta, Harish Jagat Pant, Rajesh Kumar Upadhyay

P36 Room: 2 Wednesday 12:40-13:00

[Gas-liquid slug flow study in single pellet string microreactors](#)

Lu Zhang, Jun Yue

P37 Room: 2 Wednesday 14:40-15:00

[Microwave-Intensified CO₂-H₂O-Carbocatalysis for Valorization of Glycerol](#)

Armando T. Quitain*, Yuri Ogasawara, Shinnosuke Uchikado, Nao Takata, Jonas Karl N. Agutaya, Mitsuru Sasaki, Yusuke Inomata, Suttichai Assabumrungrat, Tetsuya Kida

P38 Room: 2 Wednesday 15:00-15:20

[Durability and Sulfur Tolerance of Li-Ru/Al₂O₃ Dual Function Material for the Integrated CO₂ Capture and Methanation](#)

Stefano Cimino, Elisabetta Maria Cepollaro, Luciana Lisi

P39 Room: 2 Wednesday 15:20-15:40

[An Intensified Membrane Reactor Concept for Mild Haber-Bosch Synthesis](#)

Damla Sivaci, Ahmet K. Avci

P40 Room: 2 Wednesday 15:40-16:00

[Mechanistic Understanding of Microwave-Assisted Thermal Catalysis in Upgrading Shale Gas](#)

Quentin Kim, Yeonsu Kwak, Cong Wang, Kewei Yu, Weiqing Zheng, Dionisios G. Vlachos*

P41 Room: 2 Wednesday 16:00-16:20

[Optimizing Porous Transport Layer through Lattice Boltzmann Simulation](#)

Jingchang Zhang, Xiaoping Guan, Ning Yang*

P42 Room: 2 Wednesday 16:20-16:40

[Alternative Haber Bosch Ammonia Reactor Concept](#)

H.-J. Zander, D. Mihailowitsch, R. Herzog, A. Stefanescu

P43 Room: 2 Wednesday 16:40-17:00

[Enhancing Polystyrene Recycling: Temperature-Responsive Pyrolysis in a Vortex Reactor](#)

Yihan Wang, Rohit Kumar, Bahman Goshayeshi, Robin John Varghese, Yi Ouyang, Kevin M. Van Geem*

P44 Room: 2 Wednesday 17:00-17:20

[Evaluation of the relevant mass and heat transfer phenomena in a packed bed membrane reactor for the direct conversion of CO₂ to dimethyl ether](#)

Serena Poto, Huub van den Bogaard, Fausto Gallucci, Fernanda Neira D'Angelo*

P45 Room: 2 Wednesday 17:20-17:40

[Solvent-free condensation of ethyl levulinate with phenol promoted by Amberlyst-15: kinetics and modeling](#)

Federica Orabona, Salvatore Capasso, Wander Y. Perez-Sena, Francesco Taddeo, Kari Eranen, Letizia Verdolotti, Riccardo Tesser, Martino Di Serio, Dmitry Murzin, Vincenzo Russo, Tapio Salmi

P46 Room: 4 Wednesday 9:00-9:20

[Visible Light Photodegradation of Selected Antibiotics with g-C₃N₄ Thin Films in a Photo-Microreactor](#)

Dominik Schimon, Petr Kluson, Petr Dzik, Tomas Homola, Petr Stavarek

P47 Room: 4 Wednesday 9:20-9:40

[Simultaneous catalytic abatement of plastic waste and CO₂ over MFI and Ni-MFI coated open-cell ceramic foams](#)

Amer Inayat, Alexandra Inayat, Michal Vastyl, Wilhelm Schwieger, Pavel Lestinsky

P48 Room: 4 Wednesday 9.40-10:00

[New perspectives in process intensification: DLP 3D printing of \$\text{I}^3\text{-Al}_2\text{O}_3\$ catalysts.](#)

Luca Mastroianni, Vincenzo Russo, Martino Di Serio, Kari Eranen, Tapio Salmi, Dmitry Murzin

Reaction and bio-reaction engineering of renewables (R)

R1 Room: 4 Monday 18:00-18:20

[Kinetics of homogeneously catalyzed dehydrogenation of 1-phenyl-1,3-propanediol-derived lignin model compound](#)

Dmitry Yu. Murzin, Veronika D. Badazhova, Risto Savela, Johan WÃrna, Reko Leino

R2 Room: 4 Monday 18:20-18:40

[Catalytic valorization of non-condensable pyrolysis gases derived from mixed plastic waste towards selective and sustainable propylene production](#)

Ehsan Mahmoudi, Stavros A. Theofanidis, Stamatia A. Karakoulia, Alessandro Longo, Christoph Sahle, Dirk E. De Vos, Angeliki A. Lemonidou

R3 Room: 4 Monday 18:40-19:00

[Purification of glycerol from a real process and kinetic modelling of its conversion to triacetin with Amberlyst 36.](#)

Aya Sandid, Taha Attarbach, Vincenzo Spallina, Jesu's Esteban*

R4 Room: 4 Monday 19:00-19:20

[Optimization and efficiency increase of syngas fermentation through control of elementary process variables](#)

Lukas Perret, Nikolaos Boukis, Joerg Sauer

R5 Room: 4 Monday 19:20-19:40

[Experimental validation of process modeling in methanol synthesis using the CAMARE process: influence of byproducts on selectivity and conversion](#)

Ine's Alejandra Carbajal Ramos, Quido Smejkal, Arash Bagherzadeh, Sergey Sokolov, Sebastian Wohlrab

R6 Room: 4 Monday 19:40-20:00

[Cell and Electrode Engineering in Green H₂ Production via Photo-Electro-Catalytic \(PEC\) Approach](#)

Francesco Tavella, Daniele Giusi, Matteo Miceli, Luana De Pasquale, Veronica Costantino, Angela M. Ronsisvalle, Chiara Genovese, Siglinda Perathoner, Gabriele Centi, Claudio Ampelli

R7 Room: 4 Tuesday 9:00-9:20

[Biomass pyrolysis and in line air-steam reforming as a potential strategy to progress towards sustainable ammonia production](#)

Irati Garcia, Leire Olazar, Maite Artetxe, Maider Amutio, Mayra Alejandra Suarez, Pablo Comendador, Martin Olazar

R8 Room: 4 Tuesday 9:20-9:40

[Hydrothermal Plant Oil Deoxygenation catalyzed by Pd supported on Mesoporous Silica with in-situ Renewable Hydrogen Production](#)

Monique Joice Auguis, Masato Kouzu, Shinya Yamanaka

R9 Room: 4 Tuesday 9:40-10:00

[Octyl levulinate biolubricant liquid-phase synthesis from levulinic acid and octanol over acidic ion-exchange resins](#)

Rodrigo Soto*, Jordi-Hug Badia, Eliana Ramirez, Roger Bringue, Carles Fite, Montserrat Iborra, Javier Tejero

R10 Room: 4 Tuesday 14:40-15:00

[Advancing Sustainable Waste Management: An Experimental Investigation of Two-Step Pyrolysis for Enhanced Plastic Solid Waste Valorization](#)

Letizia Marchetti, Mariangela Guastaferro, Marco Vaccari, Federica Annunzi, Leonardo Tognotti, Cristiano Nicoletta

R11 Room: 4 Tuesday 15:00-15:20

[A Proof-of-Concept Demonstration of the Integrated Methanol Reforming - Desalination Fuel Cell System: The Effect of CO₂ and CO on the Cell Performance](#)

Salman Abdalla, Arunchander Asokan, Matthew E. Suss¹, Michael Patrascu and David S. A. Simakov

R12 Room: 4 Tuesday 15:20-15:40

[Developing a machine learning integrated hybrid model for bioprocess kinetic modelling](#)

Luca Riezzo, Harry Walter Kay, Dongda Zhang

R13 Room: 4 Tuesday 15:40-16:00

[Hysteresis in the selectivity to long-chain products during Fischer-Tropsch synthesis occurring in wax-saturated catalyst pellets](#)

Qingyuan Zheng, Jack Williams, Mick Mantle, Andrew Sederman, Leendert Bezemer, Lynn Gladden

R14 Room: 4 Tuesday 16:00-16:20

[Selective light olefin production from PVC-contaminated plastic waste through catalytic pyrolysis: effect of phosphorous modification and mesopore introduction](#)

Oguzhan Akin, Qing He, Parviz Yazdani, Robin John Varghese, Kevin Van Geem

R15 Room: 4 Tuesday 16:20-16:40

[Effect of pre-treatment conditions on Fe-based catalyst for e-fuel production via modified Fischer-Tropsch synthesis](#)

Alessio Tauro, Fabio Salomone, Raffaele Pirone, Samir Bensaid

R16 Room: 4 Tuesday 16:40-17:00

[Kinetic Investigation of Oleic Acid Esterification with Trimethylolpropane to Optimize Bio-Based Lubricant Synthesis from Used Cooking Oils \(UCO\)](#)

Michele Emanuele Fortunato, Vincenzo Russo, Rosa Vitiello, Martino Di Serio

R17 Room: 3 Wednesday 9:00-9:20

[Development of a kinetic scheme for biomass pyrolysis with detailed description of volatiles: a combined experimental and modeling strategy](#)

Veronica Piazza, Paulo Debiagi, Eleonora Benedetto, Alessio Frassoldati, Luca Lietti, Tiziano Faravelli, Alessandra Beretta

R18 Room: 3 Wednesday 9:20-9:40

[Reactive sorption of ammonia to enable low pressure synthesis](#)

Luc Liedtke Collin Smith Laura Torrente-Murciano

R19 Room: 3 Wednesday 9.40-10:00

[Kinetic analysis of xylose hydrogenation over carbon-supported copper catalyst at relatively low hydrogen pressures](#)

Hiroyasu Fujitsuka, Taku Hiraoka, Motoaki Kawase

R20 Room: 3 Wednesday 12:00-12:20

[Advancing Sustainable Ethanol Production: An Experimental and Kinetic Exploration of the Integrated Synthesis of Cellulose to Ethanol through a Cascade of Reactions](#)

Ambereen A. Niaze, Sreedevi Upadhyayula, Mahendra Sunkara

R21 Room: 3 Wednesday 12:20-12:40

[Elucidating the interplay of transport processes, buffer and charge transfer kinetics in CO₂ electroreduction in Gas Diffusion Electrodes through hierarchical multiscale analysis](#)

Kaustav Niyogi, Mauro Bracconi, Matteo Maestri

R22 Room: 3 Wednesday 12:40-13:00

[Designing lignin depolymerization by Ni/C-assisted \$\hat{I}^2\$ -ether cleavage and kinetic modeling](#)

Tina Rocnik Kozmelj, Zan Lavric, Blaz Likozar, Miha Grilc, Edita Jasiukaityte' -Grojzdek

R23 Room: 4 Wednesday 14:40-15:00

[Demonstrating E-fuel production in a Power-to-X plant via the rWGS-FT Pathway](#)

Christian Frilund, Pekka Simell

R24 Room: 4 Wednesday 15:00-15:20

[CO₂ hydrogenation through direct Fischer-Tropsch Synthesis including methane reforming as a novel scenario](#)

Khashayar Yaghoubi, Tuomas Koiranen

R25 Room: 4 Wednesday 15:20-15:40

[Impact of alpha-Olefins and Diolefins from Polyolefin Pyrolysis Oil on the Catalytic Cracking Mechanistic Pathways](#)

Bahman Goshayeshi, Stavros Alexandros Theofanidis, Mehrdad Seifali Abbas-Abadi, Ehsan Mahmoudi, Kevin M. Van Geem, Angeliki Lemonidou

R26 Room: 4 Wednesday 15:40-16:00

[Efficient deactivation and thermal heat management modelling of an industrial methanation reactor validated by real-plant data.](#)

Simon Hermann, Emanuele Moioli, Julia Witte, Robert Guttel

R27 Room: 4 Wednesday 16:00-16:20

[Solvolytic transformations of soda miscanthus lignin: an experimental and modelling assessment of de- and repolymerization kinetics via continuous lumping](#)

Lucas I. Garbarino, Boyana Atanasova, Jeroen Lauwaert and Joris W. Thybaut

R28 Room: 4 Wednesday 16:20-16:40

[Kinetics of Synthetic Multi-Enzyme Reaction Networks: Dynamic Flux Estimation by use of Piecewise Cubic Hermite Interpolating Polynomials \(PCHIP\)](#)

Severo Balasbas III, Kai Sundmacher

Reaction engineering crossing the boundaries (C)

C1 Room: 4 Monday 9.40-10:00

[Magnesiothermic Reduction of Carbon Dioxide in a Porous Monolith for Carbon Dioxide-Derived Carbon Materials](#)

Hadas Elazar-Mittelman, Peter Corkery, Michael Tsapatsis, Jonah Erlebacher

C2 Room: 4 Monday 12:00-12:20

[Digital Twins of Steady-State and Dynamic Joule-heated Reactors](#)

Arnav Mittal, Marianthi Ierapetritou, Dionisios Vlachos

C3 Room: 4 Monday 12:20-12:40

[A Scalable Process for the Depolymerisation of Polyethylene Terephthalate \(PET\)](#)

Joseph Wood, Guido Grause, Joseph Sutton, Ali Al-Rida Hmayed, Andrew Dove

C4 Room: 4 Monday 12:40-13:00

[Chemical reaction engineering beyond earth: Design study and experimental proof of concept for the Sabatier reaction in a polymeric reactor](#)

Jens Friedland, Goran Baade, Robert Guttel

C5 Room: 4 Monday 14:40-15:00

[Assessing quantitative kinetic insights from operando-UV-Vis spectroscopy: an application to NH₃-SCR on Cu-CHA](#)

C. Negri, N. Usberti, M. Bracconi, I. Nova, M. Maestri*, E. Tronconi*

C6 Room: 4 Monday 15:00-15:20

[AI accelerated micro-kinetic modelling in heterogeneous catalysis: an application of physically enhanced ANNs to CFD simulations of industrial packed-bed reactors](#)

F. Biermann, R. Uglietti, F. A. Doppel, T. Kircher, M. Bracconi, M. Maestri, M. Votsmeier

C7 Room: 4 Monday 15:20-15:40

[Investigating the Interpretability and Reliability of Machine Learning Frameworks for Chemical Retrosynthesis](#)

Friedrich Hastedt, Klaus Hellgardt, Sophia N. Yaliraki, Ehecatl Antonio del Rio Chanona, Dongda Zhang

C8 Room: 4 Monday 15:40-16:00

[Highly integrated process equipment from Additive Manufacturing: Digital Process Engineering tool chain for more efficient P2X high pressure reactions](#)

Christoph Kiener, Uliana Sollner, Katharina Ecker, Mertcan Kaya, Christoph Klahn, Karla Herrera Delgado, Joerg Sauer, Janne Reisch, Leon Kick, Bastian Etzold

C9 Room: 4 Monday 16:00-16:20

[Operando-Raman Kinetic Analysis of Surface Carbon Formation and Its Kinetic Consequences on Methane Dry Reforming Kinetics on Rh-Based Catalysts](#)

Riccardo Colombo, Gianluca Moroni, Chiara Negri, Matteo Maestri

C10 Room: 4 Monday 16:20-16:40

[Unconventional Reactor Performance via Joule Electrification](#)

Kewei Yu, Sagar Sourav, Weiqing Zheng, Dionisios G. Vlachos

C11 Room: 4 Monday 16:40-17:00

[Increasing computational efficiency of reactive CFD simulations of fixed and fluidized bed reactors through Dynamic Load Balancing](#)

Daniele Micale, Mauro Bracconi, Matteo Maestri

C12 Room: 4 Monday 17:00-17:20

[Enhancing Ethylene Selectivity via Forced Dynamic Operation of Ethane Oxidative Dehydrogenation on Diffusion Limited Catalytic Pellets](#)

Austin C. Morales, Praveen Bollini, Michael P. Harold

C13 Room: 4 Monday 17:20-17:40

[Reaction engineering in plasma catalysis: Effect of process parameters on plasma catalytic CO₂ hydrogenation](#)

Xiaolei Fan

C14 Room: 4 Monday 17:40-18:00

[Strategies for robust and efficient scientific machine learning in reaction engineering](#)

Kian Hajireza, David Eklund, Ronnie Andersson

Education session: what to teach in the future (E)

E1 Room: 4 Wednesday 12:00-12:20

[Teaching Chemical Reaction Engineering Using Effective Capstone Integration](#)

Phavanee Narataruksa, Kraipat Cheenkachorn, Chaiwat Prapainainar, Suwimol Wongsakulphasatch, Pichan Tantichaipakorn, Piyapong Hunpinyo

E2 Room: 4 Wednesday 12:20-12:40

[A Comparative Study of Portable and Tabletop Spectrometers for Monitoring of Bioprocesses](#)

Krithika Padmanabhan, Keerthana C, Sridharakumar Narasimhan, Nirav P. Bhatt

E3 Room: 4 Wednesday 12:40-13:00

[A virtual laboratory for teaching chemical kinetics, reaction engineering, and separation processes](#)

Tuomo Sainio