XXIII International conference on Chemical Reactors
CHEMREACTOR-23

Ghent, Belgium
November 5 – 9, 2018

Scientific Program

Scientific Program of the XXIII International conference on Chemical Reactors CHEMREACTOR-23

Ghent, Belgium, November 5-9, 2018

EFCE Event 748

Boreskov Institute of Catalysis of the Siberian Branch of the Russian Academy of Sciences, Novosibirsk, Russia

Ghent University, Ghent, Belgium

European Federation on Chemical Engineering

Scientific Council on Theoretical Fundamentals of Chemical Technology RAS Scientific Council on Catalysis RAS

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Professor Guy Marin
Ghent University
Belgium

Professor Alexandr Noskov
Boreskov Institute of Catalysis SB RAS
Russia

Conference Organizing Team

Professor Kevin Van Geem
Ghent University
Belgium

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Boreskov Institute of Catalysis SB RAS
Russia

Conference Proceedings:
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ELSEVIER

MEDIA PARTNERSHIP
Reaction Chemistry & Engineering
Royal Society of Chemistry

CONFERENCE WEBSITE:

http://conf.nsc.ru/CR_23

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Professor Vadim Yakovlev	Boreskov Institute of Catalysis SB RAS, Russia
Mr. Ilya Zolotarskii	Boreskov Institute of Catalysis SB RAS, Russia

LOCAL ORGANIZING COMMITTEE

Professor Denis Constales	Ghent University, Belgium
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Dr. Paul Van Steenberge	Ghent University, Belgium
Professor Dr. Ir. Wolter Prins	Ghent University, Belgium BTG Biomass Technology Group bv, Enschede, The Netherlands

SCIENTIFIC TRENDS

Advances in Chemical Reactor Fundamentals

Chemical Reaction Kinetics

Energy & Mass Transfer in Chemical Reactors and first principles calculations

Fundamentals of Hydrodynamics and Fluid Flow in Chemical Reactors

Chemical Reaction Engineering and Reactor Design – Novel Experimental Approaches, Modeling, Scale-Up and Optimization

Mathematical Simulation: Multiscale Analytic and Computational Studies of Chemical Reactors

Development of Chemical Reactors and Flow-Sheeting of Reactive Processes

New Chemical Reactor Designs (e.g., Structured Reactors, Membrane Reactors, Microreactors)

Process Intensification and Novel Approaches in Multifunctional Reaction Processes (e.g., Microwave/Induction Heated Reactors, Ultrasonic Reactors, Unsteady-State Forcing and Sorption Enhancement in Chemical Reactors, Multifunctional Reactors, Nature-Inspired Engineering of Reaction Processes, High-gravity, High-Shear Reactors)

Chemical Reactors and Technologies for Targeted Applications

Environmental Protection and Utilization of Waste

Reactors for Polymers and Other Novel Materials with Targeted Properties

Processing of Biomass and Renewable Feedstocks

Electrochemical and Photochemical Reaction Engineering

Biochemical Engineering

CO_2 Sequestration and Utilisation

Advanced Processing of Conventional and Unconventional Hydrocarbon Feedstocks

Modern Reactive Technologies for Natural Gas, Oil and Coal Processing

Chemical Processes for Intensification of Fuel Production

Chemical Reactors for In Situ Processing of Oil and Coal in Deposits

Chemical Reactors and Processes for Treatment of Heavy Hydrocarbon Feedstock and Shale Oil

November 5, Monday

Morning Session
REFTER Hall

08.45 Conference opening

PLENARY LECTURES

Chairpersons:
Professor Guy Marin, Belgium
Professor Mario Montes, Spain

09.00
PL-1
Professor Jens Kehlet Nørskov
Technical University of Denmark, Lyngby, Denmark
A Professor Mikhail Slin'ko Honorary Lecture
CATALYSIS FOR SUSTAINABLE PRODUCTION OF FUELS AND CHEMICALS

10.00
PL-2
Professor Vemuri Balakotaiah[1], Zhe Sun[1], David H. West[2]
[1]*University of Houston, USA*
[2]*SABIC Technology Center, Surgarland, TX, USA*
AUTOTHERMAL REACTOR DESIGN FOR CATALYTIC PARTIAL OXIDATIONS

11.00 Coffee-break

KEYNOTE LECTURES

Chairperson: Professor Carlos Castillo-Araiza, Mexico

11.30
KL-1
Professor Manos Mavrikakis
University of Wisconsin, Madison, Wisconsin, USA
PREDICTION OF REACTION RATES FOR IMPROVED CATALYST DESIGN AT THE ATOMIC SCALE

12.00
KL-2
Professor José Carlos Brito Lopes
University of Porto, Portugal
The NETmix REACTOR: CONCEPTS, TECHNOLOGY AND PRODUCTS

12.30 Lunch

Afternoon Session
REFTER Hall

ORAL PRESENTATIONS

Section I.
ADVANCES IN CHEMICAL REACTOR FUNDAMENTALS

Chairperson: Professor Evgeny Rebrov, United Kingdom

14.00
OP-I-1
Peng B.[1,2], Yablonsky G.[3], **Constales D.**[4], Marin G.[4], Muhler M.[1,2]
TESTING THE INVARIANT FOR THE NON-LINEAR CHEMICAL REACTION
[1]*Ruhr-University Bochum, Bochum, Germany*
[2]*Max Planck Institute for Chemical Energy Conversion, Mulheim an der Ruhr, Germany*
[3]*Washington University in St. Louis, St. Louis, MO, USA*
[4]*Ghent University, Ghent, Belgium*

14.20
OP-I-2
Quaglio M., Waldron C., Pankajakshan A., Gavriilidis A., Galvanin F.
A MODEL-BASED DATA MINING APPROACH FOR OUTLIER DETECTION IN KINETIC MODELLING STUDIES
Chemical Engineering Department, University College London, London, United Kingdom

14.40
OP-I-3
Till Z., Varga T., Chován T.
REDUCTION OF LUMPED REACTION NETWORKS BASED ON GLOBAL SENSITIVITY ANALYSIS
University of Pannonia, Veszprém, Hungary

15.00
OP-I-4
Slinko M.M.[1], Makeev A.G.[2], Luss D.[3]
MECHANISM OF CO OXIDATION OVER Pt-GROUP METALS UNDER HIGH PRESSURE CONDITIONS: Langmuir–Hinshelwood or Mars–van Krevelen?
[1]*Semenov Institute of Chemical Physics RAS, Moscow, Russia*
[2]*Lomonosov Moscow State University, Moscow, Russia*
[3]*University of Houston, USA*

15.20
OP-I-5
Yablonsky G.[1], Stokie D.[1], Kumfer B.[1], Verma P.[1], Min Y.[1], Zhu Y.[1], Jun Y.[1], Suresh A.[2], Axelbaum R.[2]
THE KINETICS OF FLUE GAS PURIFICATION FOR PRESSURIZED OXY-COMBUSTION
[1]*Washington University in St. Louis, St. Louis, MO, USA*
[2]*Indian Institute of Technology Bombay, Mumbai, India*

15.40 Coffee-break

Afternoon Session
REFTER Hall

ORAL PRESENTATIONS

Section I.
ADVANCES IN CHEMICAL REACTOR FUNDAMENTALS

Chairperson: Professor Joris Thybaut, Belgium

16.00
OP-I-6
Kolb G.[1,2], Ortega C.[2], Hessel V.[2]
DIMETHYL ETHER CONVERSION TO GASOLINE GRADE HYDROCARBONS OVER ZSM-5: KINETIC STUDY IN A RECYCLE REACTOR
[1]*Fraunhofer IMM (Fraunhofer Institute for Microtechnology and Microsystems), Mainz, Germany*
[2]*Eindhoven University of Technology, Eindhoven, The Netherlands*

16.20
OP-I-7
Standl S.[1], Kühlewind T.[1], Kirchberger F.M.[1], Tonigold M.[2], Lercher J.A.[1], Hinrichsen O.[1]
METHANOL-TO-OLEFINS (MTO) on ZSM-5: SINGLE-EVENT KINETIC MODELING, MECHANISTIC ANALYSIS AND REACTOR DESIGN
[1]*Technical University of Munich, Munich, Germany*
[2]*Clariant Produkte (Deutschland) GmbH, Bruckmühl, Germany*

16.40
OP-I-8
Petrov R.[1], Nazimov D.[1], Klimov O.[1], Noskov A.[1], Parakhin O.[2]
KINETIC MODEL FOR n-BUTANE TO BUTADIENE DEHYDROGENATION ON Cr-Al CATALYST
[1]*Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia*
[2]*LLC «SPAC «Sintez», Barnaul, Russia*

17.00
OP-I-9
Alvarado Camacho C.[1], Thybaut J.[2], Ruiz Martinez R.[1], Morales A.[1], Castillo-Araiza C.O.[1]
KINETIC ASSESSMENT OF THE OXATIVE DEHYDROGENATION OF ETHANE USING a NiSnO CATALYSTS
[1]*Autonomous Metropolitan University-Iztapalapa, Iztapalapa, Mexico*
[2]*Ghent University, Ghent, Belgium*

17.20
OP-I-10
Chizhik S.A.[1,2], Popov M.P.[1], Nemudry A.P.[1]
KINETICS OF OXYGEN EXCHANGE BETWEEN NONSTOICHIOMETRIC OXIDES AND GAS PHASE: ANALYSIS OF GIBBS ENERGY RELATIONS IN TERMS OF CONTINUOUS HOMOLOGOUS SERIES
[1]*Institute of Solid State Chemistry and Mechanochemistry SB RAS, Novosibirsk, Russia*
[2]*Novosibirsk State University, Novosibirsk, Russia*

17.40

OP-I-11

Arutyunov V.S.[1,2], Troshin K.Y.[1,3], Nikitin A.V.[1,3], Kiryushin A.A.[2], Belyaev A.A.[1,3], Ozerskii A.V.[1,3], Komarov I.K.[1,3], Strekova L.N.[1]

SELF-IGNITION DELAY OF METHANE-ALKANE FUEL COMPOSITIONS

[1]*Semenov Institute of Chemical Physics RAS, Moscow, Russia*

[2]*ONCLEN LLC, Moscow, Russia*

[3]*Noncommercial Partnership Center of Pulse Detonation Combustion, Moscow, Russia*

19.00 Welcome Reception

Afternoon Session
RECTOR VERMEYLEN Hall

ORAL PRESENTATIONS

Section II.
CHEMICAL REACTION ENGINEERING AND REACTOR DESIGN – NOVEL EXPERIMENTAL APPROACHES, MODELING, SCALE-UP AND OPTIMIZATION

Chairperson: Professor Yao Wang, China

14.00
OP-II-1
Bac S., Avci A.K.
CFD MODELING OF MICROCHANNEL ENABLED ETHYLENE OXIDE SYNTHESIS WITH INTEGRATED COOLING
Bogazici University, Istanbul, Turkey

14.20
OP-II-2
Ambrosetti M., Bracconi M., Balzarotti R., Maestri M., Groppi G., Tronconi E.
OPEN-CELL FOAMS AND PERIODIC OPEN-CELLULAR STRUCTURES AS ENHANCED SUBSTRATES FOR THE INTENSIFICATION OF ENVIRONMENTAL CATALYTIC PROCESSES
Politecnico di Milano, Milan, Italy

14.40
OP-II-3
Balzarotti R., Ambrosetti M., Beretta A., **Groppi G.,** Tronconi E.
INVESTIGATION OF PACKED FOAMS AS A NOVEL REACTOR CONFIGURATION FOR METHANE STEAM REFORMING
Politecnico di Milano, Milan, Italy

15.00
OP-II-4
Plachá M.[1], **Šourek M.[1]**, Koci P.[1], Isoz M.[1], Vaclavik M.[1], Svoboda M.[2], Price E.[3], Novak V.[3], Thompsett D.[3]
PORE-SCALE MODELING OF COATED CATALYTIC FILTERS
[1]*University of Chemistry and Technology, Prague, Czech Republic*
[2]*University of West Bohemia, Pilsen , Czech Republic*
[3]*Johnson Matthey Technology Centre, Sonning Common, Reading, United Kingdom*

15.20
OP-II-5
Vernikovskaya N.V.[1,2], Ovchinnikova E.V.[1], Chumachenko V.A.[1], Gribovskii A.G.[1], Makarshin L.L.[1]
MATHEMATICAL MODELING OF HIGHLY EXOTHERMAL PROCESSES IN MICRO-CHANNEL REACTORS
[1]*Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia*
[2]*Novosibirsk State Technical University, Novosibirsk, Russia*

15.40 Coffee-break

Afternoon Session
RECTOR VERMEYLEN Hall

ORAL PRESENTATIONS

Section II.
CHEMICAL REACTION ENGINEERING AND REACTOR DESIGN – NOVEL EXPERIMENTAL APPROACHES, MODELING, SCALE-UP AND OPTIMIZATION

Chairperson: Professor Paul Van Steenberge, Belgium

16.00
OP-II-6
Minette F., De Wilde J.
MULTI-SCALE MODELING OF AN ANNULAR STRUCTURED CATALYTIC REACTOR: APPLICATION TO STEAM METHANE REFORMING
Catholic University of Louvain, Louvain-la-Neuve, Belgium

16.20
OP-II-7
Claes T., Leblebici M.E., Van Gerven T.
DESIGN AND EVALUATION OF PHOTOCATALYTIC MICROSTRUCTURED REACTOR MODULES
Catholic University of Leuven, Leuven, Belgium

16.40
OP-II-8
Boon J.[1,2]
THE SORBENT AND THE PROCESS: CO_2 and H_2O SORPTION ENHANCEMENT IN CHEMICAL REACTORS
[1]*Sustainable Process Technology, ECN, Energy Research Center of the Netherlands, Petten, The Netherlands*
[2]*Eindhoven University of Technology, Eindhoven, The Netherlands*

17.00
OP-II-9
Zazhigalov S., Zagoruiko A.
HYDROGEN PRODUCTION BY SORPTION-ENHANCED STEAM REFORMING OF HYDROCARBONS WITH AUTOTHERMAL SORBENT REGENERATION IN A SUPER-ADIABATIC HEAT FRONT OF CATALYTIC COMBUSTION REACTION
Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia

17.20

OP-II-10

Bremer J.[1]**,** Sundmacher K.[1,2]

FLEXIBLE PRODUCTION OF SYNTHETIC METHANE: DYNAMIC OPERATION AND CONTROL OF FIXED-BED METHANATION REACTORS

[1]*Max Planck Institute for Dynamics of Complex Technical Systems, Magdeburg, Germany*
[2]*Otto-von-Guericke University Magdeburg, Magdeburg, Germany*

17.40

OP-II-11

Fukuhara C.[1]**,** Watanabe R.[1], Ratchahat S.[2], Sudoh M.[2]

A POWERFUL CO_2 METHANATION REACTOR with Ni/CeO_2 STRUCTURED CATALYST: ESTIMATION OF MASS AND HEAT TRANSFER PROFILES

[1]*Shizuoka University, Naka-ku Hamamatsu, Shizuoka, Japan*
[2]*Amano Institute of Technology, Hosoecho, Hamamatsu, Shizuoka, Japan*

19.00 Welcome Reception

November 6, Tuesday

Morning Session
REFTER Hall

PLENARY LECTURES

Chairpersons:
Professor Kevin Van Geem, Belgium
Professor Gregory Yablonsky, USA

09.00
PL-3
Professor Dionisios G. Vlachos
University of Delaware, Newark, Delaware, USA
MULTI-LEVEL BRIDGE BETWEEN REACTION ENGINEERING AND COMPUTATIONAL CATALYSIS

10.00
PL-4
Mr. Clayton C. Sadler, John Senetar, Geoffrey Fichtl
Honeywell UOP, Des Plaines, IL, USA
METHANOL TO OLEFINS: CONCEPT TO COMMERCIALIZATION

11.00 Coffee-break

KEYNOTE LECTURES

Chairperson: Professor José Carlos Brito Lopes, Portugal

11.30
KL-3
Professor Eugeniusz Molga
Warsaw University of Technology, Poland
APPLICATION OF NEURAL NETWORKS TO APPROXIMATE AND GENERALIZE EXPERIMENTAL DATA

12.00
KL-4
Professor Mario Montes, Oihane Sanz
University of the Basque Country, San Sebastián, Spain
INTENSIFICATION OF CATALYTIC PROCESSES WITH STRUCTURED CATALYSTS AND REACTORS

12.30 Lunch

Afternoon Session
REFTER Hall

ORAL PRESENTATIONS

Section I.
ADVANCES IN CHEMICAL REACTOR FUNDAMENTALS

Chairperson: Dr. Frédérique Battin-Leclerc, France

14.00
OP-I-12
Skudin V., **Gavrilova N.N.**
KINETIC STUDY OF CARBON DIOXIDE CONVERSION OF METHANE ON MEMBRANE CATALYSTS UNDER KNUDSEN DIFFUSION CONDITIONS
D. Mendeleyev University of Chemical Technology of Russia, Moscow, Russia

14.20
OP-I-13
Sinev M., Lomonosov V., Gordienko Y., Ponomareva E.
OPTIMIZATION OF KINETIC DESCRIPTION OF GAS-PHASE AND CATALYTIC OXIDATION OF C1-C2 HYDROCARBONS
Semenov Institute of Chemical Physics RAS, Moscow, Russia

14.40
OP-I-14
Uskov S.I.[1,2], **Potemkin D.I.[1,2],** Snytnikov P.[1,2], Shigarov A.B.[1], Kurochkin A.V.[3], Kirillov V.A.[1], Sobyanin V.A.[1]
LOW-TEMPERATURE STEAM REFORMING OF LIGHT HYDROCARBONS: KINETIC STUDY ON THE WAY TO SELECTIVE CONVERSION
[1]*Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia*
[2]*Novosibirsk State University, Novosibirsk, Russia*
[3]*AET OG "INTECH", Ufa, Russia*

15.00
OP-I-15
Li H., Gao M., Ye M., Liu Z.
MESO-SCALE MODEL OF REACTION-DIFFUSION PROCESS WITHIN A CATALYST PARTICLE FOR MTO PROCESS
Dalian Institute of Chemical Physics, Chinese Academy of Sciences, Dalian, China

15.20
OP-I-16
Ye G.[1], Zhou X.[1], Coppens M.[2]
PROBING CATALYST DEACTIVATION BY COKE AT THE PARTICLE LEVEL DURING PROPANE DEHYDROGENATION USING A DISCRETE MODEL
[1]*East China University of Science and Technology, Shanghai, China*
[2]*Chemical Engineering Department, University College London, London, United Kingdom*

15.40 Coffee-break

Afternoon Session
REFTER Hall

ORAL PRESENTATIONS

Section I.
ADVANCES IN CHEMICAL REACTOR FUNDAMENTALS

Chairperson: Professor Mikhail Sinev, Russia

16.00
OP-I-17
Bracconi M., Ambrosetti M., Maestri M., Groppi G., Tronconi E.
EFFECTIVE THERMAL CONDUCTIVITY IN OPEN CELLULAR STRUCTURES: ANALYSIS OF THE EFFECT OF THE GEOMETRICAL PROPERTIES AND PERFORMANCE COMPARISON
Politecnico di Milano, Milan, Italy

16.20
OP-I-18
Uglietti R., Bracconi M., Maestri M.
COUPLING MICROKINETIC MODELING WITH CFD-DEM FOR THE SIMULATION OF FLUIDIZED REACTIVE SYSTEMS
Politecnico di Milano, Milan, Italy

16.40
OP-I-19
Donaubauer P., Schmalhorst L., Hinrichsen O.
2D CONTINUUM MODELS FOR FIXED-BED REACTOR DESIGN: IMPACT OF 2D FLOW FIELD ON INLET REGION CHARACTERISTICS
Technical University of Munich, Munich, Germany

17.00
Flash presentations
Poster Session
Beer Reception

Afternoon Session
RECTOR VERMEYLEN Hall

ORAL PRESENTATIONS

Section II.
CHEMICAL REACTION ENGINEERING AND REACTOR DESIGN – NOVEL EXPERIMENTAL APPROACHES, MODELING, SCALE-UP AND OPTIMIZATION

Chairperson: Professor Matteo Maestri, Italy

14.00
OP-II-12
Shoynkhorova T.B.[1], **Snytnikov P.**[1,2,3], Simonov P.[1,3], Potemkin D.[1,2], Rogozhnikov V.[1], Kulikov A.[1], Belyaev V.[1,2,3], Sobyanin V.[1]
SYNGAS PRODUCTION FOR SOFC VIA CATALYTIC OXIDATION OF DIESEL FUEL
[1]Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia
[2]Novosibirsk State University, Novosibirsk, Russia
[3]UNICAT Ltd, Novosibirsk, Russia

14.20
OP-II-13
He Z., Minette F., De Wilde J.
NUMERICAL SIMULATION OF INDUSTRIAL SCALE AUTOTHERMAL CHEMICAL LOOPING METHANE REFORMING FOR SYNGAS PRODUCTION IN A DUAL FLUIDIZED BED REACTOR
Catholic University of Louvain, Louvain-la-Neuve, Belgium

14.40
OP-II-14
Cherkasov N.[1,2]**,** Bai Y.[1], Exposito A.[1], Rebrov E.[1,2]
PERFORMANCE AND SELECTIVITY COMPARISON OF PACKED BED AND TUBE REACTORS IN SELECTIVE HYDROGENATION
[1]Stoli Catalysts Ltd, Coventry, United Kingdom
[2]University of Warwick, Coventry, United Kingdom

15.00
OP-II-15
Guffanti S., Visconti C.G., Groppi G.
THE EFFECTS OF INTRAPARTICLE DIFFUSION PHENOMENA ON DIMETHYL ETHER DIRECT SYNTHESIS
Politecnico di Milano, Milan, Italy

15.20
OP-II-16
Banzaraktsaeva S., Ovchinnikova E.V., Chumachenko V.A.
ETHANOL-TO-ETHYLENE DEHYDRATION ON RING-SHAPED ALUMINA CATALYST IN TUBULAR REACTOR
Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia

15.40 Coffee-break

Afternoon Session
RECTOR VERMEYLEN Hall

ORAL PRESENTATIONS

Section II.
CHEMICAL REACTION ENGINEERING AND REACTOR DESIGN – NOVEL EXPERIMENTAL APPROACHES, MODELING, SCALE-UP AND OPTIMIZATION

Chairperson: Dr. Pasi Tolvanen, Finland

16.00
OP-II-17
Driessen R.T., van der Linden J.J.Q., Bos M.J., Kersten S.R.A., Brilman D.W.F.
MODELING OF CO_2 ADSORPTION ON SUPPORTED AMINE SORBENTS IN A MULTISTAGE FLUIDIZED BED
Sustainable Process Technology, University of Twente, Enschede, The Netherlands

16.20
OP-II-18
Fernengel J.[1], Bolton L.[2], Hinrichsen O.[1]
CHARACTERISATION AND DESIGN OF SINGLE PELLET STRING REACTORS USING NUMERICAL SIMULATION
[1]*Technical University of Munich, Garching-Munich, Germany*
[2]*BP, Sunbury-on-Thames, United Kingdom*

16.40
OP-II-19
Frey M., Violet L., Seyidova L., **Richard D.,** Fongarland P.
HYBRID CATALYSIS: A NEW REACTOR DESIGN FOR ONE-POT SYNERGISTIC COUPLING OF ENZYMATIC AND HETEROGENEOUS CATALYSIS
Laboratory of Catalytic Process Engineering, CNRS-CPE-Lyon, Villeurbanne, France

17.00
Flash presentations
Poster Session
Beer Reception

November 7, Wednesday

Morning Session
REFTER Hall

PLENARY LECTURE

Chairpersons:
Professor Manos Mavrikakis, USA
Professor Andrey Zagoruiko, Russia

09.00
PL-5
Professor Dr.-Ing. Kai Sundmacher[1,2]**,** Steffen Linke[2], Kevin McBride[1]
[1]*Max Planck Institute for Dynamics of Complex Technical Systems, Magdeburg, Germany*
[2]*Otto-von-Guericke University, Magdeburg, Germany*
SOLVENT SELECTION AND TUNING FOR SUSTAINABLE CHEMICAL PROCESSES

KEYNOTE LECTURES

10.00
KL-5
Dr. Bénédicte Cuenot
CERFACS - European Centre for Research and Advanced Training in Scientific Computation, Toulouse, France
NUMERICAL SIMULATION OF COMBUSTION: FROM FUNDAMENTALS TO APPLICATIONS

10.30
KL-6
Dr. Marco Van Goethem
Technip Benelux B.V., Zoetermeer, The Netherlands
TechnipFMC's SWIRL FLOW TUBE® RADIANT COIL: FROM PATENT TO APPLICATION

11.00 Coffee-break

Morning Session
REFTER Hall

ORAL PRESENTATIONS

Section I.
ADVANCES IN CHEMICAL REACTOR FUNDAMENTALS

Chairperson: Professor Dr. Gunther Kolb, Germany

11.30
OP-I-20
Castillo-Araiza C.O., Gómez-Ramos G.A., Couder-Garcia M., Buenrostro-Figueroa J., Huerta-Ochoa S., Prado-Barragan L.A.
CHARACTERIZATION OF HYDRODYNAMICS, HEAT AND MASS TRANSPORT UNDER ABIOTIC AND BIOTIC CONDITION IN A TRAY BIOREACTOR FOR THE PRODUCTION OF PROTEASES OUT OF AGROINDUSTRIAL WASTES
Autonomous Metropolitan University-Iztapalapa, Iztapalapa, Mexico

11.50
OP-I-21
Chezeau B., Fontaine J.-P., **Vial Ch.**
EXPERIMENTAL ANALYSIS OF HYDROGEN PRODUCTION, LIQUID-TO-GAS MASS TRANSFER AND MIXING IN DARK FERMENTATION PROCESS
Clermont Auvergne University, CNRS, Sigma Clermont. Institut Pascal, Clermont-Ferrand, France

12.10
OP-I-22
Danican A., Chezeau B., Fontaine J., Vial C.
CHARACTERIZATION OF THE LOCAL HYDROMECHANICAL STRESS THROUGH EXPERIMENTAL AND NUMERICAL ANALYSIS OF HYDRODYNAMICS UNDER DARK FERMENTATION OPERATING CONDITIONS
Clermont Auvergne University, CNRS, Sigma Clermont. Institut Pascal, Clermont-Ferrand, France

12.30 Lunch

Afternoon Session
REFTER Hall

ORAL PRESENTATIONS

Section I.
ADVANCES IN CHEMICAL REACTOR FUNDAMENTALS

Chairperson: Professor Sascha Kersten, The Netherlands

14.00
OP-I-23
Dorokhov I., Hellgardt K., Hii K.K.(M)
SPATIALLY-RESOLVED REACTION CALORIMETRY WITH PACKED BED REACTOR
Imperial College London, London, United Kingdom

14.20
OP-I-24
Gomez N.[1,2]**,** Vandewalle L.[2], Reyniers P.[2], Molina A.[1], Van Geem K.[2], Marin G.[2]
CAPTURING THE EFFECT OF PARTICLE CLUSTERS IN A DOWNFLOW REACTIVE SYSTEM VIA LARGE EDDY SIMULATIONS
[1]*National University of Colombia, Medellin, Colombia*
[2]*Ghent University, Laboratory for Chemical Technology, Ghent, Belgium*

14.40
OP-I-25
Greiner R.[1,2], Prill T.[3], Iliev O.[3], van Setten B.[2], Votsmeier M.[1,2]
TOMOGRAPHY BASED SIMULATION OF REACTIVE FLOW AT THE MICRO-SCALE: PARTICULATE FILTERS WITH WALL INTEGRATED CATALYST
[1]*Darmstadt University of Technology, Darmstadt, Germany*
[2]*Umicore AG & Co. KG, Hanau, Germany*
[3]*Fraunhofer ITWM, Kaiserslautern, Germany*

Section III.
CHEMICAL REACTORS AND TECHNOLOGIES FOR TARGETED APPLICATIONS

15.00
OP-III-1
Rodriguez-Vega P., Ateka A., Aguayo A., Bilbao J.
DIRECT SYNTHESIS OF DIMETHYL ETHER (DME) from CO/CO_2 in a MEMBRANE REACTOR
University of the Basque Country UPV/EHU, Bilbao, Spain

15.20
OP-III-2
Ozturk N.F., Avci A.K.
INTENSIFIED DME PRODUCTION FROM SYNTHESIS GAS WITH CO_2
Bogazici University, Istanbul, Turkey

15.40 Coffee-break

Morning Session
RECTOR VERMEYLEN Hall

ORAL PRESENTATIONS

Section II.
CHEMICAL REACTION ENGINEERING AND REACTOR DESIGN – NOVEL EXPERIMENTAL APPROACHES, MODELING, SCALE-UP AND OPTIMIZATION

Chairperson: Professor Choji Fukuhara, Japan

11.30
OP-II-20
Hernández-Ortiz J.C.[1], **Van Steenberge P.**[1], Duchateau J.[2], Toloza C.[2], Schreurs F.[2], Reyniers M.[1], Marin G.[1], D'hooge D.R.[1]
MULTIPHASE REACTOR MODELING FOR REACTIVE PROCESSING OF POLYOLEFINES
[1]*Ghent University, Ghent, Belgium*
[2]*SABIC Geleen, Geleen, The Netherlands*

11.50
OP-II-21
Nuñez Manzano M., Kulkarni S.R., Marin G.B., Nopens I., Heynderickx G.J., Van Geem K.
PROOF OF CONCEPT CFD STUDY OF POLYSTYRENE PYROLYSIS IN A GAS-SOLID VORTEX REACTOR
Ghent University, Ghent, Belgium

12.10
OP-II-22
Mohammad A.F.[1], El-Naas M.H.[2], Al-Marzouqi A.H.[1], Al-Marzouq M.H.[1], Suleiman M.I.[3], Al-Musharfy M.[3], Firmansyah T.[3]
CFD SIMULATION OF A NOVEL GAS-LIQUID REACTOR SYSTEM
[1]*United Arab Emirates University, Al-Ain, United Arab Emirates*
[2]*Qatar University, Doha, Qatar*
[3]*ADNOC Refining Research Center, Abu Dhabi, United Arab Emirates*

12.30 Lunch

Afternoon Session
RECTOR VERMEYLEN Hall

ORAL PRESENTATIONS

Section II.
CHEMICAL REACTION ENGINEERING AND REACTOR DESIGN – NOVEL EXPERIMENTAL APPROACHES, MODELING, SCALE-UP AND OPTIMIZATION

Chairperson: Professor Eugeniusz Molga, Poland

14.00
OP-II-23
Möller K., Khazali A.
X-GTL: A STUDY OF THE PROCESS OPTIONS USING A MULTI-PHASE PROCESS MODELLING FRAMEWORK
University of Cape Town, Cape Town, South Africa

14.20
OP-II-24
Ovchinnikova E.V., Chumachenko V.A., Andrushkevich T.V.
NICOTINIC ACID PRODUCTION AT ELEVATED β-PICOLINE LOADING: THEORETICAL STUDIES OF THE POSSIBILITY TO INTENSIFY THE PROCESS
Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia

14.40
OP-II-25
Rebrov E.[1,2], Fernández-Garcia J.[2], Matveeva V.[1], Cherkasov N.[2], Sulman E.[1]
TRANSIENT OPERATION: A NOVEL WAY TO ENHANCE SELECTIVITY IN GLUCOSE ISOMERIZATION REACTION
[1]*Tver Technical University, Tver, Russia*
[2]*University of Warwick, Coventry, United Kingdom*

15.00
OP-II-26
Chakraborty S., Paul S.K., Dutta S.K.
SPATIOTEMPORAL OSCILLATIONS IN BATCH REACTORS PROMOTE LIGNOCELLULOSIC BIOFUEL PRODUCTION
Indian Institute of Technology Kharagpur, Kharagpur, India

15.20
OP-II-27
Zagoruiko A.
LOW-TEMPERATURE CHEMISORPTION-ENHANCED CATALYTIC DECOMPOSITION OF HYDROGEN SULFIDE: THERMODYNAMIC ANALYSIS AND PROCESS CONCEPT
Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia

15.40 Coffee-break

November 8, Thursday

Morning Session
REFTER Hall

ORAL PRESENTATIONS

Section III.
CHEMICAL REACTORS AND TECHNOLOGIES FOR TARGETED APPLICATIONS

Chairperson: Professor Klaus Möller, South Africa

10.00
OP-III-3
Currie R.[1], Nikolic D.[2], Petkovska M.[2], **Simakov D.**[1]
CO_2 CONVERSION ENHANCEMENT IN A PERIODICALLY OPERATED SABATIER REACTOR: NONLINEAR FREQUENCY RESPONSE ANALYSIS AND SIMULATION-BASED STUDY
[1]*University of Waterloo, Waterloo, Ontario, Canada*
[2]*University of Belgrade, Belgrade, Serbia*

10.20
OP-III-4
Lan L., Wang A., **Wang Y.**
APPLICATION OF DIELECTRIC-BARRIER DISCHARGES REACTOR in CO_2 HYDROGENATION
Dalian University of Technology, Dalian, China

10.40
OP-III-5
Moioli E., Gallandat N., Züttel A.
OPTIMAL REACTOR DESIGN for CO_2 METHANATION on Ru/Al_2O_3
Swiss Federal Institute of Technology in Lausanne, Lausanne, Switzerland
Empa Materials Science & Technology, Dubendorf, Switzerland

11.00 Coffee-break

Chairperson: Professor David Simakov, Canada

11.30
OP-III-6
Dubinin Y.V.[1,2]**,** Yazykov N.[1], Simonov A.[1], Yakovlev V.[1,2]
COMBUSTION IN THE FLUIDIZED BED OF CATALYST AS AN EFFECTIVE METHOD OF OIL WASTE UTILIZATION
[1]*Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia*
[2]*Novosibirsk State University, Novosibirsk, Russia*

11.50
OP-III-7
Frassoldati A.[1], Cuoci A.[1], Saufi A.E.[1], Faravelli T.[1], Calabria R.[2], Chiariello F.[2], Massoli P.[2]
AN EXPERIMENTAL AND MODELLING STUDY OF FAST BIOMASS PYROLYSIS OIL DROPLET COMBUSTION
[1]*Politecnico di Milano, Milan, Italy*
[2]*Istituto Motori, Department of Engineering, ICT and Technologies for Energy and Transportation, National Research Council of Italy, Napoli, Italy*

12.10
OP-III-8
Krasnikov D.V.[1], Iakovlev V.Ya.[1], Gilshteyn E.P.[1], Kopylova D.S.[1], Grebenko A.K.[1], Tsapenko A.P.[1], Nasibulin A.G.[1,2]
THERMOPHORETIC DEPOSITION COMBINED WITH AEROSOL CVD SYNTHESIS OF SINGLE-WALLED CARBON NANOTUBES FOR THIN, CONDUCTIVE, AND TRANSPARENT FILMS OF EXCEPTIONAL CHARACTERISTICS
[1]*Skolkovo Institute of Science and Technology, Moscow, Russia*
[2]*Aalto University, Espoo, Finland*

12.30 Lunch

Afternoon Session
REFTER Hall

ORAL PRESENTATIONS

Section III.
CHEMICAL REACTORS AND TECHNOLOGIES FOR TARGETED APPLICATIONS

Chairperson: Professor Ahmet Kerim Avci, Turkey

14.00
OP-III-9
Marathe P., Westerhof R., **Kersten S.**
PYROLYSIS OF LIGNIN: EFFECTS OF MOLECULAR WEIGHT AND BOND TYPE
University of Twente, Enschede, The Netherlands

14.20
OP-III-10
Hočevar B.[1,2], Huš M.[1], Grilc M.[1], Likozar B.[1]
MUCIC ACID HYDRODEOXYGENATION OVER METAL CATALYSTS
[1]*National Institute of Chemistry, Ljubljana, Slovenia*
[2]*University of Ljubljana, Slovenia*

14.40
OP-III-11
Möller K., **Mhlongo M.,** Dalton R., Embling N., Collins R.
MULTI-PHASE, MULTI-SPECIES MODEL FOR THE CONVERSION OF RECYCLED PLASTIC TO DIESEL
University of Cape Town, Cape Town, South Africa

15.00
OP-III-12
Violet L., Mifleur A., Vanoye L., Favre-Réguillon A., Philippe R., Fongarland P.
CATALYTIC DEHYDROGENATION COUPLING OF ALCOHOLS TO ESTERS: MECHANISM AND KINETIC STUDIES FOR MODELLING PURPOSES
Laboratory of Catalytic Process Engineering, UMR CNRS-CPE-Lyon, University Lyon 1, Villeurbanne-Lyon, France

15.20
OP-III-13
Sulman A.[1], Matveeva V.[1,2], Lakina N.[1], Golikova E.[1], Sulman M.[1], Tikhonov B.[1], Sidorov A.[1], Sulman E.[1]
MAGNETICALLY SEPARABLE BIOCATALYSTS BASED ON IMMOBILIZED ENZYMES
[1]*Tver State Technical University, Tver, Russia*
[2]*Tver State University, Tver, Russia*

15.40
OP-III-14
Venezia B.[1], Ellis P.[2], Gavriilidis A.[1]
CONTINUOUS CATALYTIC AEROBIC OXIDATION OF BENZYL ALCOHOL IN A SLURRY TUBE-IN-TUBE REACTOR USING Au-Pd/TiO_2 CATALYST
[1]*Chemical Engineering Department, University College London, London, United Kingdom*
[2]*Johnson Matthey Technology Centre, Sonning Common, Reading, United Kingdom*

16.00
OP-III-15
Shivaprasad P., Patterson D., Jones M., Emanuelsson E.
PROCESS INTENSIFICATION OF ENZYME CATALYSED KINETIC RESOLUTION OF 1-PHENYLETHANOL IN A SPINNING MESH DISC REACTOR
University of Bath, Bath, United Kingdom

16.20 Closing

November 8, Thursday

Morning Session
BLANCQUAERT Hall

ORAL PRESENTATIONS

Section II.
CHEMICAL REACTION ENGINEERING AND REACTOR DESIGN – NOVEL EXPERIMENTAL APPROACHES, MODELING, SCALE-UP AND OPTIMIZATION

Chairperson: Professor Saikat Chakraborty, India

10.00
OP-II-28
Cordero-Lanzac T., Aguayo A.T., Castaño P., Bilbao J.
MODELING THE CONVERSION OF DIMETHYL ETHER INTO OLEFINS CONSIDERING THE HZSM-5 BASED CATALYST DEACTIVATION
University of the Basque Country, Bilbao, Spain

10.20
OP-II-29
Santos E., **Rijo B.,** Lemos M.A., Lemos F.
PLASTIC WASTE PYROLYSIS IN A SEMI-BATCH REACTOR
Instituto Superior Técnico, Lisboa, Portugal

10.40
OP-II-30
Freites Aguilera A.[1], **Tolvanen P.[1],** Leveneur S.[1,2] , Mikkola J.[1,3], Marchant T.[4], Salmi T.[1]
MODELING OF MICROWAVE IRRADIATED AND HETEROGENEOUSLY CATALYSED EPOXIDATION OF VEGETABLE OILS
[1]*Åbo Akademi University, Turku, Finland*
[2]*Rouen Normandie University, Saint-Étienne-du-Rouvray, France*
[3]*Umea University, Umeå, Sweden*
[4]*University of Wollongong, Wollongong, Australia*

11.00 Coffee-break

Chairperson: Dr. Dominique Richard, France

11.30
OP-II-31
Jokiel M.[1], Sundmacher K.[1,2]
NOVEL REACTOR DESIGNS FOR THE HYDROFORMYLATION OF LONG-CHAIN OLEFINS: FLEXIBILITY AND AUTOMATION ASPECTS
[1]*Max Planck Institute for Dynamics of Complex Technical Systems, Magdeburg, Germany*
[2]*Otto-von-Guericke University Magdeburg, Magdeburg, Germany*

Section IV.
ADVANCED PROCESSING OF CONVENTIONAL AND UNCONVENTIONAL HYDROCARBON FEEDSTOCKS

11.50
OP-IV-1
Song Y.[1], Marrodán L.[2], Vin N.[1], Herbinet O.[1], Assaf E.[3], Fittschen C. [3], Stagni A.[4], Faravelli T.[4], Alzueta M.U. [2], Battin-Leclerc F. [1]
THE SENSITIZING EFFECTS OF NO_2 and NO ON METHANE LOW TEMPERATURE OXIDATION IN A JET STIRRED REACTOR
[1]*Reactions and Process Engineering Laboratory, CNRS, Lorraine University, Nancy, France*
[2]*University of Zaragoza, Zaragoza, Spain*
[3]*Université Lille, Lille, France*
[4]*Politecnico di Milano, Milan, Italy*

12.10
OP-IV-2
Fedotov A.[1], Uvarov V.[2], Tsodikov M.[1]
INNOVATIVE HYBRID MEMBRANE-CATALYTIC TECHNOLOGY FOR SYNGAS, HYDROGEN AND VALUABLE MONOMERS PRODUCTION
[1]*A.V. Topchiev Institute of Petrochemical Synthesis RAS, Moscow, Russia*
[2]*The Institute of Structural Macrokinetics, RAS, Moscow, Russia*

12.30 Lunch

Afternoon Session
BLANCQUAERT Hall

ORAL PRESENTATIONS

Section IV.
ADVANCED PROCESSING OF CONVENTIONAL AND UNCONVENTIONAL HYDROCARBON FEEDSTOCKS

Chairperson: Professor Vladimir Arutyunov, Russia

14.00
OP-IV-3
Cheula R.[1], Soon A.[2], **Maestri M.[1]**
STRUCTURE-DEPENDENT MULTISCALE MODELLING OF CATALYTIC PROCESSES: AN APPLICATION TO THE CATALYTIC PARTIAL OXIDATION OF METHANE ON RHODIUM
[1]*Politecnico di Milano, Milan, Italy*
[2]*Yonsei University, Seoul, South Korea*

14.20
OP-IV-4
Belinskaya N.S.[1], Ivanchina E.D.[1], Frantsina E.V.[1], Lutsenko A.S.[1], Nazarova G.Y.[1], Glik P.A.[1], Dementyev A.Y.[2]
PROGNOSTIC MODELLING OF DESTRUCTIVE PROCESSES OF HYDROCARBON FEEDSTOCK CONVERSION
[1]National Research Tomsk Polytechnic University, Tomsk, Russia
[2]PJSC "KINEF", Tomsk, Russia

14.40
OP-IV-5
Maksimov A.L., Magomedova M.V., Peresypkina E.G., Afokin M.I.
INTEGRATED TECHNOLOGY OF OLEFINS SYNTHESIS FROM DYMETHYL ETHER
A.V. Topchiev Institute of Petrochemical Synthesis RAS, Moscow, Russia

15.00
OP-IV-6
Mekki-Berrada A., Zani M., Souchon V., Pereira De Oliveira L.C., Chainet F.
COMPARATIVE STUDY OF THE SULFUR SPECIATION by GC and GC×GC for GAS OIL CHARACTERIZATION in HDT PROCESS SIMULATION
IFP Energies Nouvelles, Solaize, France

15.20
OP-IV-7
Madlokazi M.[1], Möller K.[2]
A THERMODYNAMICALLY CONSISTENT REACTOR MODEL FOR THE FURNACE BLACK PROCESS
[1]Orion Engineered Carbons, Port Elizabeth, South Africa
[2]University of Cape Town, Cape Town, South Africa

15.40
OP-IV-8
Palos R., **Gutiérrez A.**, Castaño P., Azkoiti M.J., Arandes J.M., Bilbao J.
MODELING THE REMOVAL OF SULFUR, AROMATICS AND HEAVIER COMPOUNDS OF LIGHT CYCLE OIL
University of the Basque Country, Bilbao, Spain

REFTER Hall

16.20 Closing

CHEMREACTOR-23 Special Sessions
OUDE INFIRMERIE Hall

Oral presentations

BIOLEUM session
November 6, Tuesday, afternoon

Chairperson: Professor Wolter Prins, Belgium

14.00
Introduction to BIOLEUM: Kevin Van Geem 10 min

14.10
SriBala G., Carstensen H., Van Geem K., Marin G.B.
ON THE REACTIVITY OF MONO-LIGNOL DERIVATIVES
Ghent University, Ghent, Belgium

14.30
Kulkarni S.R., **Gonzalez Quiroga A.,** Heynderickx G.J., Van Geem K., Marin G.B.
EXPERIMENTAL DEMONSTRATION OF BIOMASS FAST PYROLYSIS IN THE GAS-SOLID VORTEX REACTOR
Ghent University, Ghent, Belgium

14.50
Kulkarni S.R., Schuerewegen C., Manzano M.N., Heynderickx G.J., Van Geem K., Marin G.B.
EXPERIMENTAL HEAT TRANSFER MODELLING IN A GAS-SOLID VORTEX UNIT
Ghent University, Ghent, Belgium

15.10
Pala M., Guo K., Prévoteau A., Rabaey K., Ronsse F., Prins W.
ELECTROCHEMICAL UPGRADING OF FAST PYROLYSIS BIO-OIL
Ghent University, Ghent, Belgium

15.30
Jia C.[1], Bueken B.[1], Van Geem K.[2], De Vos D.[1]
ISOLATION OF PHENOLICS FROM BIO-OIL USING FLEXIBLE MIL-53 AS HIGHLY SELECTIVE ADSORBENT
[1]*Centre for Surface Chemistry and Catalysis K.U. Leuven, Leuven, Belgium*
[2]*Ghent University, Ghent, Belgium*

15.50
Boerjan W.
GENETIC ENGINEERING OF LIGNIN AMOUNT AND STRUCTURE TO IMPROVE BIOMASS PROCESSING
Ghent University, Ghent, Belgium

IMPROOF session
November 8, Thursday, afternoon

Chairperson: Dr. Marko Djokic, Belgium

14.00

Introduction to IMPROOF: Kevin Van Geem 10 min

14.10

Namysl S.[1], Pelucchi M.[2], Herbinet O.[1], Ranzi E.[2], Frassoldati A.[2], Faravelli T.[2], Battin-Leclerc F.[1]

THE OXIDATION OF LINEAR C_4-C_6 ALDEHYDES: AN EXPERIMENTAL AND KINETIC MODELLING STUDY

[1]*Reactions and Process Engineering Laboratory, CNRS, Lorraine University, Nancy, France*

[2]*Politecnico di Milano, Milan, Italy*

14.30

Pelucchi M.[1], Namysl S.[2], Herbinet O.[2], Frassoldati A.[1], Faravelli T.[1], Battin-Leclerc F.[2]

AN EXPERIMENTAL AND KINETIC MODELLING STUDY OF C_4-C_5 CARBOXYLIC ACIDS PYROLYSIS AND OXIDATION IN A JET STIRRED REACTOR

[1]*Politecnico di Milano, Milan, Italy*

[2]*Reactions and Process Engineering Laboratory, CNRS, Lorraine University, Nancy, France*

14.50

Virgilio M.[1], Van Geem K.[2], Arts T.[1], Marin G.B.[2]

EXPERIMENTAL AERO-THERMAL INVESTIGATIONS OF SWIRLING FLOWS IN THREE-DIMENSIONAL RIBBED TUBES

[1]*von Karman Institute for Fluid Dynamics, St. Gilles/Brussel, Belgium*

[2]*Ghent University, Ghent, Belgium*

15.10

Dedeyne J.N.[1], Virgilio M.[2], Arts T.[2], Van Geem K.[1], Marin G.B.[1]

PROCESS INTENSIFICATION IN STEAM CRACKING: FLOW CHARACTERISTICS OF SPHERICAL DIMPLES

[1]*Ghent University, Ghent, Belgium*

[2]*von Karman Institute for Fluid Dynamics, St. Gilles/Brussel, Belgium*

15.30

Vangaever S., Reyniers P., Heynderickx G.J., Van Geem K.

COMPUTATIONAL FLUID DYNAMIC-BASED STUDY OF THE STEAM CRACKING PROCESS USING A HYBRID 3D-1D APPROACH

Ghent University, Ghent, Belgium

15.50

Symoens S.[1]**,** Djokic M.[1], Zhang J.[1], Bellos G.[2], Jakobi D.[3], Weigandt J.[3], Klein S.[3], Battin-Leclerc F.[4], Heynderickx G.[1], Thielen J.V.[5], Cuenot B.[6], Faravelli T.[7], Theis G.[8], Lenain P.[9], Munoz A.E.[10], Olver J.[11], Van Geem K.[1]

"PAS DE DEUX" OF HIGH-TEMPERATURE ALLOY AND 3D REACTOR TECHNOLOGY FOR STEAM CRACKING COILS: IMPACT ON PRODUCT YIELDS AND COKE FORMATION

[1]*Ghent University, Ghent, Belgium*
[2]*DOW Benelux B.V., Terneuzen, The Netherlands*
[3]*Schmidt + Clemens GmbH + CO. KG, Lindlar, Germany*
[4]*National Center for Scientific Research, Nancy, France*
[5]*CRESS B.V., Breskens, The Netherlands*
[6]*European Centre for Research and Advanced Training in Scientific Computation, Toulouse, France*
[7]*Politecnico di Milano, Milan, Italy*
[8]*John Zink International, Luxembourg SARL, Luxembourg*
[9]*Ayming France, Lyon, France*
[10]*AVGI, Ghent, Belgium*
[11]*Emmisshield Inc, Blacksburg, Virginia, USA*

November 6, Tuesday
Afternoon Session

17.00
POSTER SESSION

FLASH PRESENTATIONS
REFTER Hall

Sanz O., Egaña A., Montes M.
FISCHER-TROPSCH SYNTHESIS INTENSIFICATION IN METALLIC FOAM STRUCTURES
University of the Basque Country, San Sebastián-Donostia, Spain

Méndez D., Cambra J.F., Barrio V.L.
POWER-TO-GAS: BIMETALLIC CATALYSTS SUPPORTED ON Al_2O_3 FROM A SULPHUR CONTAING BIOGAS
University of the Basque Country, Bilbao, Spain

Lissens M., Mendes P.S., Sabbe M.K., Thybaut J.
METHANOL-TO-OLEFINS: A DETAILED DESCRIPTION FOR THE AROMATIC HYDROCARBON POOL
Ghent University, Ghent, Belgium

Bac S.[1], Say Z.[2], Bulutoglu P.[1], Ozensoy E.[2], **Avci A.K.[1]**
CO_2 REFORMING OF GLYCEROL OVER Rh-BASED CATALYSTS
[1]*Bogazici University, Istanbul, Turkey*
[2]*Bilkent University, Ankara, Turkey*

Rijo B.[1], Lemos F.[1], Fonseca I.[2], Vilelas A.[3]
STUDY OF DIFFERENT KINETIC EXPRESSIONS ON THE ACETYLENE HYDROGENATION
[1]*Instituto Superior Técnico, Lisboa, Portugal*
[2]*Universidade Nova de Lisboa, Caparica, Portugal*
[3]*REPSOL Polímeros, Sines, Portugal*

Yamada H.[1], Kashifuku H.[1], Tagawa T.[2]
REACTION RATE ENHANCEMENT IN GAS-LIQUID-LIQUID-SOLID FOUR-PHASE CONTINUOUS FLOW REACTOR
Nagoya University, Nagoya, Japan
National Institute of Technology, Toyota College, Japan

Hao Z., Lapkin A.
AN EFFICIENT APPROACH TO KINETIC PARAMETER ESTIMATION THROUGH DYNAMIC-MODEL-BASED DESIGN OF EXPERIMENT
University of Cambridge, Cambridge, United Kingdom

Gavrilova N.N., **Myachina M.A.,** Ardashev D.V., Nazarov V.V., Skudin V.V.
SYNTHESIS OF MEMBRANE CATALYSTS BASED ON MESOPOROUS SUPPORT FOR DRY REFORMING OF METHANE
D. Mendeleev University of Chemical Technology of Russia, Moscow, Russia

POSTER PRESENTATIONS
KAPITTELZAAL Hall

PP-1 Aksenov D.G., Kodenev E.G., **Ovchinnikova E.V.,** Echevskii G.V., Chumachenko V.
PROCESSING of C4-FRACTION CONTAINED IN THE WASTE GASES OF REFINERIES BY CATALYTIC ISOMERISATION TO ISOBUTANE on Pd/SULFATED ZIRCONIA
Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia

PP-2 **Al-Dalama K.**
INCREASING THE EFFICIENCY OF THE HDS PROCESS BY THE MODIFICATION OF Ni/Mo/W HYDROTREATING CATALYST SUPPORTED ON MODIFIED SUPPORTS
Kuwait Institute For Scientific Research, Kuwait City, Kuwait

PP-3 **Alghamdi N.**, Bavykina A., Gascon J., Sarathy S.
MODELING CO_2 to METHANOL CONVERSION IN A STAGNATION FLOW REACTOR
King Abdullah University of Science and Technology (KAUST), Thuwal, Saudi Arabia

PP-4 **Authayanun S.[1],** Saebea D.[2], Patcharavorachot Y.[3], Arpornwichanop A.[4]
MODEL BASED EVALUATION OF ALKALINE ANION EXCHANGE MEMBRANE FUEL CELLS WITH UNBALANCED PRESSURE OPERATION
[1]*Srinakharinwirot University, Nakhon Nayok, Thailand*
[2]*Burapha University, Chonburi, Thailand*
[3]*King Mongkut's Institute of Technology Ladkrabang, Bangkok, Thailand*
[4]*Chulalongkorn University, Bangkok, Thailand*

PP-5 Bac S.[1], Say Z.[2], Bulutoglu P.[1], Ozensoy E.[2], **Avci A.K.[1]**
CO_2 REFORMING OF GLYCEROL OVER Rh-BASED CATALYSTS
[1]*Bogazici University, Istanbul, Turkey*
[2]*Bilkent University, Ankara, Turkey*

PP-6 Bazaikin Y.[1,3], Malkovich E. [1,3], Okunev A.[1,2], **Derevschikov V.[2,3,4]**
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PP-44 Markova E.B.[1], Serov J.M.[1], **Cherednichenko A.G.[1]**, Sheshko T.F.[1], Lyadov A.S.[2], Khozina E.V.[3], Simonov V.N.[3,4]

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THREE-STAGE HEAVY OIL HYDROPROCESSING OVER MACROPOROUS CATALYSTS

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[1]Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia
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[1]Tver State Technical University, Tver, Russia
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PP-86 Yamada H.[1], Kashifuku H.[1], Tagawa T.[2]
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Nagoya University, Nagoya, Japan
National Institute of Technology, Toyota College, Japan

PP-87 Yemelyanova V.S., Dossumova B.T., Shakiyev E.M., **Baizhomartov B.B.,** Shakiyeva T.V.
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"Scientific and Production Technical Center "Zhalyn" LLP, Almaty, Kazakhstan

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"Scientific and Production Technical Center "Zhalyn" LLP, Almaty, Kazakhstan

PP-89 Zaichenko A., Podlesniy D.N., Zhirnov A.A., Salganskaya M.V., Tsvetkov M.V., **Polianczyk E.V.**
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Institute of Problems of Chemical Physics RAS, Chernogolovka, Moscow region, Russia

PP-90 Rodikova Y., **Zhizhina E.,** Gogin L. Pai Z.
EFFICIENT TWO-PHASE PROCESSES OF OXIDIZING SUBSTITUTED ALKYLPHENOLS INTO THE CORRESPONDING *PARA*-QUINONES IN THE PRESENCE OF HETEROPOLY ACID SOLUTIONS
Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia

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SO_2 OXIDATION IN STRUCTURED CATALYTIC CARTRIDGES WITH GLASS-FIBER CATALYST FOR CONDITIONING OF FLUE GASES FROM COAL-FIRED POWERPLANTS
[1]Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia
[2]Novosibirsk State University, Novosibirsk, Russia

PP-92 Krivtsova K.B., **Mityanina O.E.**
FUTURE DEVELOPMENT OF UPGRADING PROCESSES FOR HEAVY OIL FEEDSTOCKS
National Research Tomsk Polytechnic University, Tomsk, Russia

VIRTUAL PRESENTATIONS

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MODELING OF ISOTHERMAL ADSORPTION OF SULPHANOL ON THE QUARTZ SAND
Institute of Catalysis and Inorganic Chemistry named after Academician M.F. Nagiyev, Baku, Azerbaijan

VP-2. Bykov V.I., Tsybenova S.B., Lomakin S.M., Varfolomeev S.D.
MATHEMATICAL MODELING OF PYROLYSIS IN TUBULAR REACTORS OF VARIOUS TYPES
Emanuel Institute of Biochemical Physics RAS, Moscow, Russia

VP-3. Chernyshev D.O., Dubrovsky V., Nechepurenko N., Varlamova E., Suchkov Y., Staroverov D.V.
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VP-4. Dossumov K.[1], Yergaziyeva G.[2], Tairabekova S.Zh.[2], Churina D.H.[1], Telbayeva M.[2]
CATALYSIS OF TRANSFORMATION OF BIOETHANOL TO ACETALDEHYDE AND HYDROGEN
[1]*Center of Physical and Chemical Methods of Research and Analysis, Almaty, Kazakhstan*
[2]*Institute of Combustion Problems, Almaty, Kazakhstan*

VP-5. Enikeeva L.[1], Khursan S.[2], Gubaydullin I.[1,3]
MATHEMATICAL MODELING OF INTRAMOLECULAR TRANSFORMATIONS OF *ORTHO*-SUBSTITUTED AROMATIC NITROSO OXIDES
[1]*Ufa State Petroleum Technological University, Ufa, Russia*
[2]*Ufa Institute of Chemistry RAS, Ufa, Russia*
[3]*Institute of Petrochemistry and Catalysis RAS, Ufa, Russia*

VP-6. Knyazev D., Chernyshev D., Dubrovsky V., **Varlamova E.,** Makarov M., Kozlovsky R.
THE STUDIED OF ALTERNATIVE METHOD FOR PRODUCTION OF ACRYLIC ACID BY DEHYDRATION OF BUTYL LACTATE
D. Mendeleev University of Chemical Technology of Russia, Moscow, Russia

VP-7. Kozlovskiy R., Luganskiy A., Zolotareva M., Suchanova M., Dyagileva A.
RESEARCH OF DIESEL FUEL CLEANING ON THE ALUMINOSILICATE ADSORBENT
D. Mendeleyev University of Chemical Technology of Russia, Moscow, Russia

VP-8. Kukueva V.V.
PREDICTIONS OF CHEMICAL REACTIVITY BY THEORETICAL CALCULATIONS
State Institution "Institute of Environmental Geochemistry", Kiev, Ukraine

VP-9. Menshchikova A., **Varlamova E.,** Filatova E., Suchkov Y.
PRODUCTION OF PLASTICIZERS BASED ON SUCCINIC ACID AND 2-ETHYLHEXANOL AND CYCLOHEXANOL
D. Mendeleev University of Chemical Technology of Russia, Moscow, Russia

VP-10. Shulyaka S.E., Sinitsin S.A., Bukharkina T.V.
XYLENES OXIDATION IN THE PRESENCE OF TRANSITION METALS SALTS MIXTURE
D. Mendeleyev University of Chemical Technology of Russia, Moscow, Russia

VP-11. Polovinkin M.A.[1], Kostiuchenko V.V.[1], Gavrilov Y.V.[1], **Sinitsin S.A.[1],** Danilov E.A.[2], Cheblakova E.G.[2], Vodoleyev V.V.[3]

SYNTHESIS AND EXTRUSION MOLDING OF Fe-Mo CATALYST FOR OXIDATIVE DEHYDROGENATION OF METHANOL TO FORMALDEHYDE

[1]D. Mendeleyev University of Chemical Technology of Russia, Moscow, Russia
[2]State Research Institute for Graphite-Based Structural Materials, Moscow, Russia
[3]JSC Tehmetall-2002, Kirovograd, Russia

VP-12. Staroverov D., Zudilin D.M., Efimov I.V., Makarov M.G.

INFLUENCE OF PALLADIUM CONTENT ON THE ACTIVITY AND STABILITY OF THE CATALYST OF THE BENZYL ALCOHOL AQUEOUS ALKALINE OXIDATION

D. Mendeleyev University of Chemical Technology of Russia, Moscow, Russia

VP-13. Zhila M., Sapunov V., Voronov M., Shpakova P., Gladysheva A.

MODIFIED FATTY ACID METHYL ESTERS DISTILLATION BOTTOMS AS A NOVEL STABILIZER FOR POLYMER COMPOSITIONS

D. Mendeleyev University of Chemical Technology of Russia, Moscow, Russia

VP-14. Bachurikhin A.[1], Efendiev M.[2]

ELECTROMAGNETIC INSTALLATION FOR NEUTRALIZATION OF WASTEWATER PRODUCTION OF OLIVE OILS

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XXIII International Conference on Chemical Reactors CHEMREACTOR-23, Ghent, Belgium, November 5-9, 2018

Nov 4, Sunday	November 5, Monday	November 6, Tuesday	November 7 Wednesday	November 8, Thursday	November 6-BIOLEUM & November 8-IMPROOF Special Sessions	Nov 9, Friday	Nov 10, Saturday
Registration, from 12.00 17.00 Boat trip "Ghent completely"	08.45 Opening			08.45 MaCKiE Opening		MaCKiE, 09.00 Excursion to Brugge	09.00 Excursion to Antwerpen
	09.00 PL-1 Nørskov	09.00 PL-3 Vlachos	09.00 PL-5 Sundmacher	09.00 MaCKiE PL Green			
	10.00 PL-2 Balakotaiah	10.00 PL-4 Sadler	10.00 KL-5 Cuenot 10.20 KL-6 Van Goethem	10.00 OP-III-3 Simakov; OP-II-28 Cordero-Lanzac 10.20 OP-III-4 Wang; OP-II-29 Rijo 10.40 OP-III-5 Moioli; OP-II-30 Tolvanen			
	11.00 Coffee break			11.00 Coffee break			
	11.30 KL-1 Mavrikakis	11.30 KL-3 Molga	11.30 OP-I-20 Castillo-Araiza; OP-II-20 Van Steenberge 11.50 OP-I-21 Vial; OP-II-21 Nunez Manzano	11.30 OP-III-6 Dubinin; OP-II-31 Jokiel 11.50 OP-III-7 Frassoldati; OP-IV-1 Song			
	12.00 KL-2 Lopes	12.00 KL-4 Montes	12.10 OP-I-22 Danican; OP-II-22 Mohammad	12.10 OP-III-8 Krasnikov; OP-IV-2 Fedotov			
	12.30 Lunch			12.30 Lunch			
	14.00 OP-I-1 Constales; OP-II-1 Bac	14.00 OP-I-12 Gavrilova; OP-II-12 Snytnikov	14.00 OP-I-23 Dorokhov; OP-II-23 Möller	14.00 OP-III-9 Kersten; OP-IV-3 Maestri			
	14.20 OP-I-2 Quaglio; OP-II-2 Ambrosetti	14.20 OP-I-13 Sinev; OP-II-13 He	14.20 OP-I-24 Gomez; OP-II-24 Ovchinnikova	14.20 OP-III-10 Hočevar; OP-IV-4 Belinskaya			
	14.40 OP-I-3 Till; OP-II-3 Groppi	14.40 OP-I-14 Potemkin; OP-II-14 Cherkasov	14.40 OP-I-25 Greiner; OP-II-25 Rebrov	14.40 OP-III-11 Mhlongo; OP-IV-5 Maksimov			
	15.00 OP-I-4 Slinko; OP-II-4 Šourek	15.00 OP-I-15 Li; OP-II-15 Guffanti	15.00 OP-III-1 Rodriguez-Vega; OP-II-26 Chakraborty	15.00 OP-III-12 Violet; OP-IV-6 Mekki-Berrada			
	15.20 OP-I-5 Yablonsky; OP-II-5 Vernikovskaya	15.20 OP-I-16 Ye; OP-II-16 Banzaraktsaeva	15.20 OP-III-2 Ozturk; OP-II-27 Zagoruiko	15.20 OP-III-13 Sulman A.; OP-IV-7 Madlokazi			
	15.40 Coffee break			15.40 OP-III-14 Venezia; OP-IV-8 Gutiérrez			
	16.00 OP-I-6 Kolb; OP-II-6 Minette	16.00 OP-I-17 Bracconi; OP-II-17 Driessen	16.30 Excursion around Ghent	16.00 OP-III-15 Shivaprasad			
	16.20 OP-I-7 Standl; OP-II-7 Claes	16.20 OP-I-18 Uglietti; OP-II-18 Fernengel		16.20 Closing			
	16.40 OP-I-8 Petrov; OP-II-7 Boon	16.40 OP-I-19 Donaubauer; OP-II-19 Richard		17.30 Evening overview of Brussels Time for beer bars			
	17.00 OP-I-9 Alvarado Camacho; OP-II-9 Zazhigalov	17.00 Flash presentations Poster Session Beer Reception					
	17.20 OP-I-10 Chizhik; OP-II-10 Bremer						
	17.40 OP-I-11 Arutyunov; OP-II-11 Fukuhara						
	19.00 Welcome Reception		20.00 Banquet				

Section I. ADVANCES IN CHEMICAL REACTOR FUNDAMENTALS

Section II. CHEMICAL REACTION ENGINEERING AND REACTOR DESIGN

Section III. CHEMICAL REACTORS AND TECHNOLOGIES FOR TARGETED APPLICATIONS

Section IV. ADVANCED PROCESSING OF HYDROCARBON FEEDSTOCKS

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ABSTRACTS

http://catalysis.ru/resources/institute/Publishing/Report/2018/Abstracts-Chemreactor-23.pdf