

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

Russian Scientific and Cultural Center in Valletta, Malta

Russian Center of International Scientific and Cultural Cooperation under RF Government

Ministry of Education and Science of the Russian Federation

European Federation on Chemical Engineering

Scientific Council on Theoretical Bases of Chemical Technology RAS

Scientific Council on Catalysis RAS

## **EFCE CONFERENCE**

# **XVIII International Conference on Chemical Reactors CHEMREACTOR-18**

Malta

September 29 – October 3, 2008

## **SCIENTIFIC PROGRAM**

Novosibirsk, 2008

## INTERNATIONAL SCIENTIFIC COMMITTEE

Mikhail G. Slinko <sup>†</sup> , <b>Honour Chairman</b>	State Research Center «Karpov NIPCI», Moscow, Russia
Valentin N. Parmon, <b>Chairman</b>	Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia
Alexander S. Noskov, <b>Vice-Chairman</b>	Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia
Dmitry Yu. Murzin, <b>Vice-Chairman</b>	Åbo Akademi University, Turku, Finland
David Agar	University of Dortmund, Germany
Alex Bell	University of California, Berkeley, CA, USA
Gilbert Froment	Texas A & M University, USA
Jiří Hanika	Institute of Chemical Process Fundamentals, Prague, Czech Republic
Erik Heeres	Rijks Universiteit Groningen, The Netherlands
Raghunath Chaudhari	National Chemical Laboratory, Pune, India
Jiří Drahoš	Academy of Sciences of the Czech Republic, Prague, Czech Republic
Mike P. Duduković	Washington University, St. Louis, USA
Gerhardt Eigenberger	Stuttgart University, Germany
Pio Forzatti	Technical University of Milan, Italy
Sergei S. Ivanchev	St. Petersburg Department of Boreskov Institute of Catalysis SB RAS, Russia
John Gleaves	Washington University, USA
Valerii A. Kirillov	Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia
Nikolay N. Kulov	Kurnakov Institute of General and Inorganic Chemistry RAS, The Scientific Council on Theoretical Foundations of Chemical Technology RAS, Moscow, Russia
Guy Marin	Ghent University, Belgium
Wolter Prins	University of Twente, Enschede, The Netherlands
Alexander V. Putilov	Bochvar All-Russian Scientific Research Institute of Inorganic Materials, Moscow, Russia
Pavel D. Sarkisov	Mendeleev University of Chemical Technology of Russia, Moscow, Russia
Vladimir A. Sobyenin	Novosibirsk State University, Russia
Gennadii F. Tereschenko	Russian Academy of Science, St. Petersburg, Russia
Constantinos G. Vayenas	University of Patras, Greece
Andrey N. Zagoruiko	Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia

## ORGANIZING COMMITTEE

Alexander S. Noskov, <b>Chairman</b>	Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia
Nikolay N. Kulov	Kurnakov Institute of General and Inorganic Chemistry RAS, The Scientific Council on Theoretical Foundations of Chemical Technology RAS, Moscow, Russia
Victor A. Chumachenko	Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia
Sergey Yu. Medvedev	Russian Scientific and Cultural Center, Valletta, Malta
Irina V. Pivovarova	Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia
Sergei I. Reshetnikov	Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia
Evgenii Smirnov	Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia
Alexey A. Spiridonov	Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia
Vadim A. Yakovlev	Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia
Tatiana V. Zamulina, <b>Secretary</b>	Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia

**The organizers express their gratitude to**

Ministry of Education and Science of  
the Russian Federation, Moscow, Russia

**for the financial support**

**SCIENTIFIC PROGRAM**  
**XVIII International Conference on Chemical Reactors**  
**CHEMREACTOR-18**

**September 29**

**Monday**

**ORACLE HALL**  
**Morning Session**

**8.50 Opening**

*Chairpersons – Professor Alexander Noskov, Professor Bair Bal’zhinimaev, Russia*

**PLENARY LECTURE**

**9.00**

**PL-1**

**Wieme J., Reyniers M.-F., Marin G.B.**

**SUSPENSION POLYMERIZATION REACTIONS AND REACTORS**

*Laboratory for Chemical Technology, Ghent University (Ghent), Belgium*

**KEY-NOTE PRESENTATIONS**

**10.00**

**KN-1**

**Murzin D.Yu.**

**100 ANNIVERSARY OF PROFESSOR M.I. TEMKIN**

*Process Chemistry Centre, Åbo Akademi University (Turku), Finland*

**10.30**

**KN-2**

**Yablonsky G.S.\*\*\*, Gleaves J.T.\*\*, Zheng X.\*\*, Feres R.\*\*, Al-Dahhan M.H\*\***

**GETTING TO THE POINT: FROM MOLECULAR TO PROCESS SCALES**

*\*Saint Louis University (St. Louis), USA*

*\*\*Washington University in St. Louis (St. Louis), USA*

**11.00-11.30**

**Coffee-break**

**ORAL PRESENTATIONS**

**Section 1. Kinetics of catalytic reactions.** *The Section is dedicated to the 100<sup>th</sup> anniversary of Professor M.I. Temkin, the outstanding specialist in the field of physical chemistry and chemical kinetics*

**11.30**

**OP-I-1-special**

**Avetisov A.K., Kuchaev V.L., Shapatina E.N.**

**KINETICS OF AMMONIA SYNTHESIS AT CATALYST POISONING WITH OXYGEN**

*Karpov Institute of Physical Chemistry (Moscow), Russia*

**12.00**

**OP-I-2-special**

**Temkin O.N.**

THE STUDIES OF THE MULTIROUTES MECHANISMS IN HOMOGENEOUS CATALYTIC PROCESSES

*Moscow State Academy of Fine Chemical Technology (Moscow), Russia*

**12.30**

**OP-I-3-special**

**Murzin D.Yu., Murzina E.V., Tokarev A.V., Mikkola J.-P.**

KINETIC MODELING OF LACTOSE OXIDATION OVER SUPPORTED PALLADIUM AND GOLD CATALYSTS

*Laboratory of Industrial Chemistry, Åbo Akademi University (Turku), Finland*

**13.00-15.00**

**Lunch**

### **Afternoon Session**

*Chairperson – Professor Igor Koptug, Russia*

**15.00**

**OP-I-4**

**Reshetnikov S.I.**

PARTIAL OXIDATION OF TOLUENE UNDER CATALYST UNSTEADY STATE: KINETICS AND MODELLING

*Boreskov Institute of Catalysis SB RAS (Novosibirsk), Russia*

**15.20**

**OP-I-5**

**Sinev M.Yu., Arutyunov V.S.**

KINETICS OF LIGHT ALKANE OXIDATION: FROM DETAILED MODELING TO PROCESS DEVELOPMENT

*Semenov Institute of Chemical Physics RAS (Moscow), Russia*

**15.40**

**OP-I-6**

**Tolvanen P., Mäki-Arvela P., Sorokin A.B.\*, Salmi T., Murzin D.Yu.**

KINETICS OF STARCH OXIDATION USING HYDROGEN PEROXIDE AS AN ENVIRONMENTALLY FRIENDLY OXIDANT AND AN IRON COMPLEX AS A CATALYST

*Process Chemistry Centre, Åbo Akademi University (Turku), Finland*

*\*Institut de Recherches sur la Catalyse et l'Environnement de Lyon, Université Lyon 1 (Villeurbanne Cedex), France*

**16.00**

**OP-I-7**

**Bruk L.G., Abdullaeva A.S., Timashova E.A., Bukina E.Yu., Oshanina I.V., Temkin O.N.**

DESIGN OF CATALYTIC SYSTEMS BASED ON THE KINETIC CONJUGATION PRINCIPLE

*Lomonosov State Academy of Fine Chemical Technology (Moscow), Russia*

**16.20**

**OP-I-16**

**Mäki-Arvela P.E., Martin G., Tokarev A., Kumar N., Hemming J., Holmbom B., Salmi T., Murzin D.Yu.**

KINETICS IN THE HYDROGENATION OF  $\beta$ -SITOSTEROL TO  $\beta$ -SITOSTANOL OVER DIFFERENT Pd CATALYSTS

*Process Chemistry Centre, Åbo Akademi University (Turku), Finland*

**16.40**

**OP-I-9**

**Lashina E.A., Chumakova N.A., Boronin A.I., Chumakov G.A.\***

CHAOTIC DYNAMICS IN THE THREE-VARIABLE KINETIC MODEL OF CO OXIDATION ON PLATINUM GROUP METALS

*Boreskov Institute of Catalysis SB RAS (Novosibirsk), Russia*

*\*Sobolev Institute of Mathematics SB RAS (Novosibirsk), Russia*

**17.00-17.20**

**Coffee-break**

*Chairperson – Professor Vladimir Razumov, Russia*

**17.20 – presentation of Autoclave Engineers company**

**Barclay D., Shestakova N.\***

SYSTEMATICAL APPROACH IN SELECTING A CATALYTIC REACTOR

*Snap-tite, Inc. Autoclave Engineers Division (Erie, Pennsylvania), USA*

*\*ROSTBIOCHEM/LAAX Ltd. (Novosibirsk), Russia*

**17.40**

**OP-I-10**

**Fefelov V.F.\*, Gorbunov V.A.\*, Myshlyavtsev A.V.\*\*\*, Myshlyavtseva M.D.\***

ADSORPTION OF COMPLEX MOLECULES WITH DIFFERENT ORIENTATION IN MONOLAYER ON SQUARE LATTICE. MONTE CARLO AND TRANSFER-MATRIX TECHNIQUES

*\*Omsk Technical State University (Omsk), Russia*

*\*\*Institute of Hydrocarbons Processing SB RAS (Omsk), Russia*

**18.00**

**OP-I-11**

**Leveneur S.\*\*\*, Murzin D.Yu.\*, Salmi T.\*, Estel L.\*\***

USE OF TAFT EQUATION: KINETIC MODELING OF PERHYDROLYSIS OF CARBOXYLIC ACIDS OVER HETEROGENEOUS AND HOMOGENOUS CATALYSTS

*\*Laboratory of Industrial Chemistry and Reaction Engineering, Åbo Akademi (Turku/Åbo), Finland*

*\*\*LSPC-Laboratoire de Sécurité des Procédés Chimiques (Mont-Saint-Aignan Cedex), France*

**18.20**

**OP-I-12**

**Sazonova N.N.\***, **Pavlova S.N.\***, **Pokrovskaya S.A.\*\*\***, **Chumakova N.A.\*\*\***,  
**Sadykov V.A\*\***

KINETIC STUDIES IN STRUCTURED CATALYTIC REACTOR WITH THE  
FRAGMENT OF MONOLITH CATALYST

*\*Boreskov Institute of Catalysis SB RAS (Novosibirsk), Russia*

*\*\* Novosibirsk State University (Novosibirsk), Russia*

**DELPHI HALL**

**Afternoon Session**

*Chairperson – Dr. Victor Chumachenko, Russia*

**ORAL PRESENTATIONS**

**Section 2. Physico-chemical and mathematical fundamentals of the  
processes in chemical reactors**

**15.00**

**OP-II-1**

**Razumov V.F.**

CHEMICAL NANOREACTORS AS BASE FOR NOVEL TECHNOLOGY(IES) OF  
NANOMATERIALS

*Institute of Problems of Chemical Physics RAS (Chernogolovka, Moscow region),  
Russia*

**15.20**

**OP-II-2**

**Myshlyavtsev A.V.\*\*\***, **Stishenko P.V.\***

MONTE CARLO SIMULATION OF ADSORPTION ON SUPPORTED  
NANOPARTICLES

*\*Omsk State University (Omsk), Russia*

*\*\*Institute of Hydrocarbons Processing SB RAS (Omsk), Russia*

**15.40**

**OP-II-3**

**Garea A.**, **Aldaco R.**, **Irabien A.**

IMPROVEMENT OF CALCIUM FLUORIDE CRYSTALLIZATION IN A  
FLUIDIZED BED REACTOR WITH MULTIPLE INLETS

*Department of Chemical Engineering and Inorganic Chemistry, University of  
Cantabria (Santander), Spain*

**16.00**

**OP-II-4**

**Schelhaas K.-P.**, **Kolb G.**

DYNAMIC SIMULATION OF A COMPLETE MICROSTRUCTURED NATURAL  
GAS FUEL PROCESSOR FOR FUEL CELL APPLICATIONS

*Institut für Mikrotechnik Mainz GmbH (IMM) (Mainz), Germany*

**16.20**

**OP-II-5**

**Lysova A.A., Koptyug I.V., Kulikov A.V.\*, Kirillov V.A.\***

MONITORING OF THE PROGRESS OF AN EXOTHERMIC CATALYTIC REACTION IN A TRICKLE BED REACTOR: AN NMR IMAGING STUDY

*International Tomography Center SB RAS (Novosibirsk), Russia*

*\*Boreskov Institute of Catalysis SB RAS (Novosibirsk), Russia*

**16.40**

**OP-II-6**

**Gorri D., Ruiz A., Ortiz A., Ortiz I.**

THE USE OF IONIC LIQUIDS AS EFFICIENT EXTRACTION MEDIUM IN THE REACTIVE SEPARATION OF CYCLOOLEFINES FROM CYCLOHEXANE

*Department of Chemical Engineering and Inorganic Chemistry, University of Cantabria (Santander), Spain*

**17.00-17.20**

**Coffee-break**

**17.20 – presentation of Autoclave Engineers company (HALL 1)**

**Barclay D., Shestakova N.\***

SYSTEMATICAL APPROACH IN SELECTING A CATALYTIC REACTOR

*Snap-tite, Inc. Autoclave Engineers Division (Erie, Pennsylvania), USA*

*\*ROSTBIOCHEM/LAAX Ltd. (Novosibirsk), Russia*

**17.40**

**OP-II-7**

**Koptyug I.V., Lysova A.A., Kovtunov K.V., Zhivonitko V.V., Khomichev A.V.**

MULTINUCLEAR NMR IMAGING IN CATALYTIC RESEARCH

*International Tomography Center SB RAS (Novosibirsk), Russia*

**18.00**

**OP-II-8**

**Schejbal M., Kočí P., Kubíček M., Marek M.**

MODELING OF DIESEL FILTERS FOR PARTICULATE REMOVAL

*Institute of Chemical Technology (Prague), Czech Republic*

**18.20**

**OP-II-9**

**Bensaid S., Marchisio D.L., Fino D., Saracco G., Specchia V.**

MODELLING OF DIESEL PARTICULATE FILTRATION IN WALL-FLOW TRAPS

*Politecnico di Torino (Torino), Italy*



**ORACLE HALL  
Morning Session**

*Chairperson – Professor Guy Marin, Belgium*

**PLENARY LECTURE****9.00****PL-2**

**Prins W., Braeckman L., Rosso-Vasic M.\*, Venderbosch R.H.V.\*\*, Kersten S.R.A.\*\*\***

THE ROLE OF CATALYSIS IN FAST PYROLYSIS OF BIOMASS

*Ghent University (Ghent), Belgium*

*\*Albemarle Catalysts Company b.v. (Amsterdam), The Netherlands*

*\*\*BTG Biomass Technology Group b.v., Enschede, The Netherlands*

*\*\*\*University of Twente (Enschede), The Netherlands*

**KEY-NOTE PRESENTATIONS****10.00****KN-3****Kapustin V.M.**

PROBLEMS AND PROSPECTS FOR IMPROVEMENT OF THE OIL-REFINING REACTOR DESIGN

*OAO VNIPINeft, Gubkin Russian State Oil & Gas University (Moscow), Russia*

**10.30****KN-4****Kulov N.N.**

CATALYTIC DISTILLATION: PROSPECTS AND PROBLEMS

*Kurnakov Institute of General and Inorganic Chemistry RAS (Moscow). Russia*

**11.00-11.20****Coffee-break**

*Chairperson – Professor Alexander Avetisov, Russia*

**ORAL PRESENTATIONS**

**Section 1. Kinetics of catalytic reactions.** *The Section is dedicated to the 100<sup>th</sup> anniversary of Professor M.I. Temkin, the outstanding specialist in the field of physical chemistry and chemical kinetics*

**11.20****OP-I-13**

**Gosiewski K.J.\*\*\*, Pawlaczyk A.\*, Warmuzinski K.\*, Jaschik M.\*, Gielzak K.\***

A STUDY ON THERMAL COMBUSTION OF LEAN METHANE – AIR MIXTURES: SIMPLIFIED REACTION MECHANISM AND KINETIC EQUATIONS

*\*Institute of Chemical Engineering, Polish Academy of Sciences (Gliwice), Poland*

*\*\*Institute of Chemistry and Environmental Protection, Jan Dlugosz University (Czestochowa), Poland*

**11.40**

**OP-I-14**

**Karnaukh A.A., Ivanova A.N., Kostenko S.S.**

KINETICS OF THE CONVERSION OF METHANE–OXYGEN–STEAM MIXTURES IN FILTRATION REACTOR

*Institute of Problems of Chemical Physics of RAS (Chernogolovka, Moscow region), Russia*

**12.00**

**OP-I-15**

**Rossetti L., Bos M., Gambaro Ch.\*, Calemma V.\*, Forni L.**

HYDROCRACKING OF LONG CHAIN LINEAR PARAFFINS

*Dip. Chimica Fisica ed Elettrochimica - Università degli Studi di Milano (Milano), Italy*

*\*ENI S.p.A. R&M Division (S. Donato Milanese), Italy*

**12.20**

**OP-I-17**

**Azizi Y, Petit C., Pitchon V.**

MECHANISM OF FORMATION OF ETHYLENE BY SELECTIVE HYDROGENATION OF ACETYLENE OVER CERIA SUPPORTED GOLD CATALYST

*Laboratoire des Matériaux, Surfaces et Procédés pour la Catalyse (LMSPC) - CNRS (Strasbourg), France*

**12.40**

**OP-I-18**

**Mohagheghi M., Bakeri Gh.**

KINETIC STUDIES OF PROPANE DEHYDROGENATION OVER Pt-Sn/Al<sub>2</sub>O<sub>3</sub> CATALYST

*National Petrochemical Company, Research & Technology Company (Tehran), Iran*

**13.00-15.00**

**Lunch**

### **Afternoon Session**

***Chairperson – Professor Dmitry Murzin, Finland***

**15.00**

**OP-I-19**

**Suprun W., Frohberg C., Oltroge R., Papp H.**

ACTIVITY AND DEACTIVATION OF ACIDIC CATALYSTS AT THE DEHYDRATION OF GLYCEROL

*Institut für Technische Chemie (Leipzig), Germany*

**15.20**

**OP-I-20**

**Semionova E.V., Popova G.Ya., Andrushkevich T.V., Ivanov E.A.,**

**Ovchinnikova E.V., Zolotarskii I.A., Parmon V.N.**

GAS PHASE OXIDATION OF FORMALDEHYDE INTO FORMIC ACID ON A

V/Ti CATALYST: 1. REACTION KINETICS  
*Boriskov Institute of Catalysis SB RAS (Novosibirsk), Russia*

**15.40**

**OP-I-21**

**Saeedizad M., Sahebdehfar S., Mansourpour Z.**

DEACTIVATION KINETICS OF PLATINUM-BASED CATALYSTS IN  
DEHYDROGENATION OF HIGHER ALKANES

*National Petrochemical Company, Research & Technology Company (Tehran), Iran*

**16.00**

**OP-I-22**

**Koči P., Plát F., Štěpánek J., Kubíček M., Marek M.**

ON THE DYNAMICS OF NH<sub>3</sub> FORMATION DURING REGENERATION OF  
NO<sub>x</sub> STORAGE CATALYTIC MONOLITH

*Institute of Chemical Technology (Prague), Czech Republic*

**16.20 Section closing**

## DELPHI HALL

### Morning Session

*Chairperson – Professor Nikolay Kulov, Russia*

#### ORAL PRESENTATIONS

#### Section 5. Catalytic processing of renewable sources: fuel, energy, chemicals

11.20

OP-V-1

**Yakovlev V.A., Khromova S.A., Sherstyuk O.V., Dundich V.O., Ermakov D.Yu., Novopashina V.M., Lebedev M.Yu., Prins W.\*, Kirillov V.A., Parmon V.N.**

DEVELOPMENT OF BIOFUELS PRODUCTION PROCESSES VIA CATALYTIC UPGRADING OF BIOLIQUIDS

*Boreskov Institute of Catalysis SB RAS (Novosibirsk), Russia*

*\*B.T.G. Biomass Technology Group (Enschede), The Netherlands*

11.40

OP-V-2

**Wildschut J., Heeres H.**

HYDRODEOXYGENATION OF FAST-PYROLYSIS OIL: A MODEL COMPONENT STUDY

*Department of Chemical Engineering, University of Groningen (Groningen), The Netherlands*

12.00

OP-V-3

**Khromova S.A., Bulavchenko O.A., Ermakov D.Yu., Lebedev M.Yu., Yakovlev V.A., Parmon V.N.**

CATALYTIC HYDRODEOXYGENATION OF ANISOLE AS A MODEL COMPOUND OF BIO-OIL

*Boreskov Institute of Catalysis SB RAS (Novosibirsk), Russia*

12.20

OP-V-4

**Simakova I., Simakova O., Mäki-Arvela P.\*, Murzin D.Yu. \***

KINETICS OF CATALYTIC DEOXYGENATION OF STEARIC ACID OVER Pd CATALYSTS: EFFECT OF METAL DISPERSION

*Boreskov Institute of Catalysis SB RAS (Novosibirsk), Russia*

*\*Åbo Akademi University (Turku/Åbo), Finland*

12.40

OP-V-5

**Tesser R., Casale L., Verde D., Di Serio M., Santacesaria E.**

KINETICS OF FFAs ESTERIFICATION: BATCH AND LOOP REACTORS

MODELLING

*Dipartimento di Chimica - Università "Federico II" (Napoli), Italy*

**13.00-15.00**

**Lunch**

## Afternoon Session

*Chairperson – Professor Muthanna Al-Dahhan, USA*

**15.00**

**OP-V-6**

**Di Serio M., Tesser R., D'Angelo A., Casale L., Santacesaria E.**

TiO<sub>2</sub>/SiO<sub>2</sub> HETEROGENEOUS CATALYST FOR BIODIESEL PRODUCTION:  
A KINETIC AND MODELLING STUDY AT HIGH TEMPERATURES AND  
PRESSURES

*Department of Chemistry, University of Naples Federico II (Naples), Italy*

**15.20**

**OP-V-7**

**Di Felice L.\*\*\*, Courson C.\*\*\*, Jand N.\*, Gallucci K.\*, Foscolo P.U.\*,  
Kiennemann A.\*\***

CATALYTIC BIOMASS GASIFICATION: CO<sub>2</sub> CAPTURE AND  
HYDROCARBONS STEAM REFORMING IN FLUIDISED BED AND  
MICROREACTOR USING WITH M/DOLOMITE CATALYSTS

*\*Chemical Engineering Department, University of L'Aquila, (L'Aquila), Italy*

*\*\*Laboratoire des Materiaux, Surfaces et Procédes pour la Catalyse, Université  
Louis Pasteur (Strasbourg), France*

**15.40**

**OP-V-8**

**Piriu B., Ammendola P., Lisi L., Ruoppolo G.**

Rh-PEROVSKITE CATALYSTS FOR BIOMASS GASIFICATION

*Istituto di Ricerche sulla Combustione - CNR (Napoli), Italy*

**16.00**

**OP-V-9**

**Kuzmin V.A., Kuzin N.A., Kireenkov V.V., Kirillov V.A.**

AUTOTHERMAL REFORMING OF DIESEL FUEL FOR VEHICLES  
APPLICATION

*Boreskov Institute of Catalysis SB RAS (Novosibirsk), Russia*

**16.20**

**OP-V-10**

**Casanovas A., Llorca J.**

ETHANOL STEAM REFORMING AND WATER GAS SHIFT REACTION OVER  
Co-Mn/ZnO CATALYSTS

*Institute of Energy Technologies, Technical University of Catalonia (Barcelona),  
Spain*

**16.40**

**OP-V-11**

**Ledesma C., Llorca J.**

HYDROGEN PRODUCTION BY STEAM REFORMING OF DIMETHYL ETHER  
OVER Cu-Zn/CeO<sub>2</sub>-ZrO<sub>2</sub> CATALYTIC MONOLITHS

*Institute of Energy Technologies, Technical University of Catalonia (Barcelona),  
Spain*

**17.00-17.20**

**Coffee-break**



**ORACLE HALL  
Morning Session**

*Chairperson – Professor Wolter Prins, Belgium*

**PLENARY LECTURE**

**9.00**

**PL-3**

**Santamaria J.**

**DEVELOPMENT OF ZEOLITE-COATED MICROREACTORS**

*University of Zaragoza, Spain*

**KEY-NOTE PRESENTATIONS**

**10.00**

**KN-5**

**Bal'zhinimaev B.S., Sadovskaya E.M., Suknev A.P.**

**ISOTOPIC TRANSIENT KINETICS STUDY TO IDENTIFY REACTION MECHANISMS**

*Boreskov Institute of Catalysis SB RAS (Novosibirsk), Russia*

**10.30**

**KN-6**

**Zagoruiko A.N.**

**CATALYTIC TECHNOLOGIES APPLYING ARTIFICIALLY CREATED CATALYST NONSTATIONARITY AND SORPTION-CATALYTIC PROCESSES**

*Boreskov Institute of Catalysis SB RAS (Novosibirsk), Russia*

**11.00-11.20**

**Coffee-break**

*Chairperson – Professor Jiří Hanika, Czech Republic*

**ORAL PRESENTATIONS**

**Section 3. Catalytic processes' development and reactors design:  
modeling, optimization, new catalyst application**

**11.20**

**OP-III-1**

**Chumachenko V.A., Ovchinnikova E.V., Klenov O.P., Noskov A.S.**

**CATALYTIC REACTOR FOR N<sub>2</sub>O ABATEMENT IN ADIPIC ACID PRODUCTION**

*Boreskov Institute of Catalysis SB RAS (Novosibirsk), Russia*

**11.40**

**OP-III-2**

**Lisi L., Pirone R., Russo G. \*, Stanzione V. \***

**Cu-ZSM5 BASED MONOLITH REACTORS FOR NO DECOMPOSITION**

*Istituto di Ricerche sulla Combustione - CNR (Napoli), Italy*

*\*Dipartimento di Chimica - Università "Federico II" (Napoli), Italy*

**12.00**

**OP-III-3**

**Schuler A., Votsmeier M.\*, Malmberg S.\*, Gieshoff J.\*, Drochner A., Vogel H.**  
NH<sub>3</sub> SCR MODELLING FOR Fe ZEOLITE CATALYSTS - MODEL-SETUP AND  
VALIDATION -

*Ernst-Berl-Institute, TU-Darmstadt (Darmstadt), Germany*

*\*Umicore AG & Co. KG (Hanau), Germany*

**12.20**

**OP-III-4**

**Smirnov E.I., Kirillov V.A., Amosov Yu.I., Bobrin A.S., Belyaev V.D.,  
Sobyenin V.A.**

SCR of NO<sub>x</sub> IN DIESEL EXHAUST WITH ONBOARD PRODUCED SYNGAS AS  
REDUCTANT

*Boreskov Institute of Catalysis SB RAS (Novosibirsk), Russia*

**12.40**

**OP-III-5**

**Bodet H., Kongmark C., Lofberg A., Pirovano C., Vannier R.N., Bordes-Richard E.**  
CATALYTIC DENSE BIMEVOX MEMBRANE REACTOR: A REVIEW

*Unité de Catalyse et de Chimie du Solide, Université des Sciences et Technologies de  
Lille (Villeneuve d'Ascq cedex), France*

**13.00-15.00**

**Lunch**

## **Afternoon Session**

**Chairperson – Professor Vladimir Kapustin, Russia**

**15.00**

**OP-III-6**

**Kozhevnikov V.L., Leonidov I.A., Patrakeev M.V.**

SOME PROPERTIES OF PEROVSKITE-LIKE FERRITES AND THEIR  
PERFORMANCE IN MEMBRANE CATALYTIC REACTORS FOR PARTIAL  
OXIDATION OF NATURAL GAS

*Institute of Solid State Chemistry, Ural Branch of Russian Academy of Sciences  
(Yekaterinburg), Russia*

**15.20**

**OP-III-7**

**Esperanza Adrover M., López E., Borio D.O., Pedernera M.N.**

SIMULATION STUDIES OF A MEMBRANE WATER-GAS SHIFT REACTOR  
UNDER NON-ISOTHERMAL CONDITIONS

*Universidad Nacional del Sur, UNS - CONICET (Bahía Blanca), Argentina*

**15.40**

**OP-III-8**

**Luis P., Garea A., Irabien A.**

MODELLING OF NON-DISPERSIVE SO<sub>2</sub> ABSORPTION PROCESS

*Department of Chemical Engineering and Inorganic Chemistry, University of Cantabria (Santander), Spain*

16.00

OP-III-9

Nekhamkina O., Sheintuch M.

FRONT VELOCITY AND CRITERION OF TRANSVERSAL PATTERNS IN  
PACKED-BED REACTORS

*Department of Chemical Engineering, Technion-I.I.T (Haifa), Israel*

16.20

OP-III-10

Peshnev B.V., Nikolaev A.I., Asilova N.Y.

REACTOR FOR CARBON NANOFIBERS SYNTHESIS

*Lomonosov Moscow State Academy of Fine Chemical Technology (Moscow), Russia*

16.40

Poster Session, Coffee-break

**DELPHI HALL  
Morning Session**

*Chairperson – Professor Martino Di Serio, Italy*

**ORAL PRESENTATIONS**

**Section 5. Catalytic processing of renewable sources: fuel, energy,  
chemicals**

11.20

OP-V-12

Hernández J.R., Arve K., Kurman A., Eränen K., Wärnå J.,  
Murzin D.Yu., Salmi T.

KINETICS OF THE BIOFUELS-ASSISTED SCR OF NO<sub>x</sub> OVER Ag/ALUMINA-  
COATED MICROCHANNELS

*Laboratory of Industrial Chemistry, Åbo Akademi University (Turku), Finland*

11.40

OP-V-13

Sadykov V.\*\*\*, Mezentseva N.\*, Vostrikov Z.\*, Alikina G.\*, Pavlova S.\*,  
Beloshapkin S.\*\*\*, Ross J.R.H.\*\*\*, Ulyanitsky V.\*\*\*\*

DESIGN OF PILOT REACTOR AND MONOLITHIC CATALYST FOR  
AUTOTHERMAL REFORMING OF OXYGENATES

*\*Boreskov Institute of Catalysis SB RAS (Novosibirsk), Russia*

*\*\*Novosibirsk State University (Novosibirsk), Russia*

*\*\*\*Limerick University (Limerick), Ireland*

*\*\*\*\*Lavrentiev Institute of Hydrodynamics SB RAS (Novosibirsk), Russia*

**12.00**

**OP-V-14**

**Galletti C., Specchia S., Saracco G., Specchia V.**

DEVELOPMENT OF A LAB SCALE CATALYTIC CHANNEL REACTOR FOR CO-PROX

*Dipartimento Scienza dei Materiali e Ingegneria Chimica - Politecnico di Torino (Torino), Italy*

**12.20**

**OP-V-15**

**Yeletsky P.M., Yakovlev V.A., Ustinov E.A.\*, Mel'gunov M.S., Parmon V.N.**

DEVELOPMENT OF TWO-STAGE PROCESS OF PREPARATION OF MICRO- AND MESOPOROUS CARBONS WITH DEVELOPED TEXTURE FROM HIGH-ASH BIOMASS

*Boreskov Institute of Catalysis SB RAS (Novosibirsk), Russia*

*\*Provita Ltd. (St. Petersburg), Russia*

**12.40**

**OP-V-16**

**Bernas H., Murzin D.Yu.**

KINETICS OF THE HYDROXYMATAIRESINOL HYDROGENOLYSIS OVER PALLADIUM CATALYSTS

*Laboratory of Industrial Chemistry and Reaction Engineering, Åbo Akademi University (Turku), Finland*

**13.00-15.00**

**Lunch**

## **Afternoon Session**

***Chairperson – Dr. Vadim Yakovlev, Russia***

**15.00**

**OP-V-17**

**Sulman M., Kosivtsov Yu., Sulman E., Alfyorov V., Lugovoy Yu.\*, Molchanov V., Tyamina I., Misnikov O., Afanasjev A., Kumar N.\*\*, Murzin D.\*\***

ENERGY PRODUCTION FROM BIOMASS VIA LOW-TEMPERATURE CATALYTIC PYROLYSIS

*Tver Technical University (Tver), Russia*

*\*Tver State University (Tver), Russia*

*\*\*Åbo Akademi University (Turku), Finland*

**15.20**

**OP-V-18**

**Gubanova E.L.\*\*\*, Sadykov V.A.\*\*, van Veen A.C.\*, Mirodatos C.\***

CATALYTIC PARTIAL OXIDATION OF METHANE TO SYNTHESIS GAS OVER CORUNDUM SUPPORTED MIXED OXIDES: TAP STUDIES

*\*Institut de Recherches sur la Catalyse et l'Environnement de Lyon (Villeurbanne Cedex), France*

*\*\*Boreskov Institute of Catalysis SB RAS (Novosibirsk), Russia*



**15.40**

**OP-V-19**

**Chiarello G.L., Selli E., Forni L.**

A PHOTOCATALYTIC REACTOR FOR SEPARATE HYDROGEN AND OXYGEN EVOLUTION FROM WATER SPLITTING

*Università degli Studi di Milano (Milano), Italy*

**16.00**

**OP-V-20**

**Miccio F.\* , Piriou B.\* \*\* , Ruoppolo G. , Chirone R.\***

BIOMASS GASIFICATION IN A CATALYTIC FLUIDIZED REACTOR WITH BEDS OF DIFFERENT MATERIALS

*\*Istituto di Ricerche sulla Combustione - CNR (Napoli), Italy*

*\*\*Dipartimento di Chimica - Università "Federico II" (Napoli), Italy*

**16.20**

**OP-V-21**

**Tramšek M., Goršek A.**

ESTIMATION OF OPTIMAL REACTOR VOLUMES FOR BIOCATALYST PRODUCTION USING NLP FORMULATION

*University of Maribor, Faculty of Chemistry and Chemical Engineering (Maribor), Slovenia*

**16.40**

**Poster Session, Coffee-break**

**ORACLE HALL  
Morning Session**

*Chairperson – Professor Jesus Santamaria, Spain*

**PLENARY LECTURES**

**9.00**

**PL-4**

**Deutschmann O.**

CATALYTIC CONVERSION OF HYDROCARBON FUELS: FROM MOLECULAR MODELING TO REACTOR OPTIMIZATION

*University of Karlsruhe, Institute for Chemical Technology and Polymer Chemistry, Germany*

**10.00**

**PL-5**

**Forzatti P.**

CATALYTIC PARTIAL OXIDATION OF METHANE TO SYNGAS

*Technical University of Milan, Italy*

**11.00-11.20**

**Coffee-break**

*Chairperson – Professor Bordes-Richard, France*

**ORAL PRESENTATIONS**

**Section 3. Catalytic processes' development and reactors design:  
modeling, optimization, new catalyst application**

**11.20**

**OP-III-11**

**Kraai G.N., Schuur B., de Vries J.G., Heeres H.J.**

PROCESS INTENSIFICATION USING A CONTINUOUS HIGHLY INTEGRATED REACTOR-SEPARATOR DEVICE

*Department of Chemical Engineering, University of Groningen (Groningen),  
The Netherlands*

**11.40**

**OP-III-12**

**Smejkal Q., Kolena J.\*, Hanika J.\*\***

ETHYL ACETATE SYNTHESIS BY COUPLING OF FIXED BED REACTOR AND REACTIVE DISTILLATION COLUMN – PROCESS INTEGRATION ASPECTS

*QUIDO-Engineering (Berlin), Germany*

*\*VUANCH, a.s. (Ústí nad Labem), Czech Republic*

*\*\*Institute of Chemical Process Fundamentals (Prague), Czech Republic*



**12.00**

**OP-III-13**

**Suzuki T., Nakao F., Na-oki I., Miyake T.**

PREPARATION AND PERFORMANCE OF WALL TUBE REACTOR IN THE REFORMING OF METHANOL

*Department of Chemical Engineering, Kansai University (Suita), Japan*

**12.20**

**OP-III-14**

**Scarpa A., Landi G.\*, Pirone R.\*, Russo G.**

MICRO-REACTORS FOR THE COMBUSTION OF METHANE

*Università Federico II di Napoli (Napoli), Italy*

*\*Research Institute on Combustion (IRC-CNR) (Napoli), Italy*

**12.40**

**OP-III-15**

**Toukoniitty B., Mikkola J.-P., Murzin D.Yu., Salmi T.**

MICROWAVES AND ULTRASOUND TOWARD PROCESS INTENSIFICATION

*Åbo Akademi University, Department of Industrial Chemistry and Reaction Engineering (Åbo/Turku), Finland*

**13.00-15.00**

**Lunch**

### **Afternoon Session**

*Chairperson – Professor Olaf Deutschmann, Germany*

**15.00**

**OP-III-16**

**Klenov O.P.**

FLOW IN THE HONEYCOMB CATALYST WITH POROUS WALLS

*Boreskov Institute of Catalysis SB RAS (Novosibirsk), Russia*

**15.20**

**OP-III-17**

**Klenov O.P., Chumakova N.A., Pokrovskaya S.A., Sadykov V.A., Noskov A.S.**

HONEYCOMB CATALYSTS WITH POROUS WALLS: CFD MODELING OF INTERACTION OF MASS TRANSFER PROCESSES WITH CATALYTIC REACTION

*Boreskov Institute of Catalysis SB RAS (Novosibirsk), Russia*

**15.40**

**OP-III-18**

**Arzamendi G., Diéguez P.M., Montes M.\*, Odriozola J.A.\*\*,**

**Sousa-Aguiar E.F.\*\*\*, Gandía L.M.\***

METHANE STEAM REFORMING IN A MICROCHANNEL REACTOR FOR GTL INTENSIFICATION: A COMPUTATIONAL FLUID DYNAMICS SIMULATION STUDY

*Public University of Navarre (Pamplona), Spain*

*\*University of the Basque Country (San Sebastián), Spain*

*\*\*Institute of Materials Science (CSIC)-University of Seville (Sevilla) Spain*

*\*\*\*CENPES/PDEDS/Petrobras (Rio de Janeiro), Brasil*

**16.00**

**OP-III-19**

**Kravtsov A.V., Ivanchina E.D., Abramini A.L., Gyngazova M.S.**

COMPUTER MODELING OF CATALYTIC REFORMING PROCESS IN  
MOVING-BED REACTOR WITH CONTINUOUS CATALYST REGENERATION

*Tomsk Polytechnic University (Tomsk), Russia*

**16.20**

**OP-III-20**

**Mischenko T.I., Snytnikov V.I.N., Snytnikov V.N., Chernykh I.G.\***

A REACTOR WITH CO<sub>2</sub> LASER RADIATION FOR DEHYDROGENATION OF  
LIGHT ALKANES TO ALKENES

*Boreskov Institute of Catalysis SB RAS (Novosibirsk), Russia*

*\*Institute of Computational Mathematics and Mathematical Geophysics  
(Novosibirsk), Russia*

**16.40**

**OP-III-21**

**Nizovskii A.I.\*, Trenikhin M.V.\*\*\*, Sharafutdinov M.R.\*\*\*, Bukhtiyarov V.I.\***

ALUMINUM ACTIVATED BY LIQUID ALLOYS AS SOURCE OF PURE  
HYDROGEN

*\*Boreskov Institute of Catalysis SB RAS (Novosibirsk), Russia*

*\*\*Institute of Hydrocarbon Processing Problems SB RAS (Omsk), Russia*

*\*\*\*Institute of Solid State Chemistry and Mechanochemistry SB RAS (Novosibirsk),  
Russia*

**17.00**

**OP-III-22**

**Salaev M.A., Krejker A.A., Magaev O.V., Knyazev A.S., Borisova E.S.\***,

**Khanaev V.M.\*, Vodyankina O.V., Kurina L.N.**

MATHEMATICAL MODELLING OF THE ETHYLENE GLYCOL OXIDATION  
PROCESS

*Tomsk State University (Tomsk), Russia*

*\*Boreskov Institute of Catalysis, SB RAS (Novosibirsk), Russia*

**17.20**

**Closing**

# DELPHI HALL

## Morning Session

*Chairperson – Professor Valery Kirillov, Russia*

### ORAL PRESENTATIONS

#### Section 4. Catalytic technologies in fuel and energy production

- *production of hydrogen*
- *production of environmental friendly fuels*
- *environmentally friendly engineering*

11.20

OP-IV-1

**Datsevich L.B.**<sup>\*,\*\*\*\*</sup>, **Grosch F.**<sup>\*</sup>, **Köster R.**<sup>\*\*</sup>, **Latz J.**<sup>\*\*\*</sup>, **Pasel J.**<sup>\*\*\*</sup>, **Peters R.**<sup>\*\*\*</sup>,  
**Pohle T.**<sup>\*\*</sup>, **Schimpl H.**<sup>\*\*</sup>, **Wache W.**<sup>\*\*</sup>, **Wolfrum R.**<sup>\*</sup>

DEEP DESULPHURIZATION OF PETROLEUM STREAMS: NOVEL TECHNOLOGIES AND APPROACHES TO CONSTRUCTION NEW PLANTS AND UPGRADING EXISTING FACILITIES

<sup>\*</sup>*MPCP GmbH (Bayreuth), Germany,*

<sup>\*\*</sup>*BAYERNOIL Raffineriegesellschaft mbH (Ingolstadt), Germany*

<sup>\*\*\*</sup>*Institute for Energy Research – Fuel Cells (IEF-3), Forschungszentrum Jülich GmbH, Jülich, Germany*

<sup>\*\*\*\*</sup>*University of Bayreuth (Bayreuth), Germany*

11.40

OP-IV-2

**Kolbakov V.V.**, **Kozlovskiy R.A.**<sup>\*</sup>, **Parmon V.N.**<sup>\*\*</sup>, **Shvets V.F.**<sup>\*</sup>,

LACTIC ACID AS BACKGROUND CHEMICAL FOR A "WHITE CHEMICAL TECHNOLOGY" DEVELOPMENT

*Nordbiochem Ltd. (Põlva), Estonia*

<sup>\*</sup>*Mendeleev University of Chemical Technology of Russia (Moscow), Russia*

<sup>\*\*</sup>*Boreskov Institute of Catalysis SB RAS (Novosibirsk), Russia*

12.00

OP-IV-3

**Snytnikov P.V.**<sup>\*\*\*</sup>, **MenY.**<sup>\*\*\*</sup>, **Hessel V.**<sup>\*\*\*\*\*</sup>, **Sobyanin V.A.**<sup>\*\*\*\*</sup>

CO REMOVAL FROM H<sub>2</sub>-RICH GAS MIXTURES IN MICROCHANNEL REACTORS WITH Cu/CeO<sub>2-x</sub> CATALYSTS

<sup>\*</sup>*Boreskov Institute of Catalysis SB RAS (Novosibirsk), Russia*

<sup>\*\*</sup>*Novosibirsk State University (Novosibirsk), Russia*

<sup>\*\*\*</sup>*Institut für Mikrotechnik Mainz GmbH (Mainz), Germany*

<sup>\*\*\*\*</sup>*Eindhoven University of Technology (Eindhoven), The Netherlands*

12.20

OP-IV-4

**Solymosi F.**, **Széchenyi A.**, **Koós Á.**

REFORMING OF ETHANOL OVER METAL CARBIDES SUPPORTED BY

MULTIWALL CARBON NANOTUBES

*Institute of Solid State and Radiochemistry, University of Szeged (Szeged), Hungary*

12.40

OP-IV-5

**L. Hernández, Kafarov V.V.**

MODELING OF HYDROGEN PRODUCTION BY STEAM REFORMING OF ETHANOL IN PACKED BED AND WALL-COATED REACTORS

*Universidad Industrial de Santander, Chemical Engineering Department (Bucaramanga), Colombia*

13.00-15.00

Lunch

## Afternoon Session

*Chairperson – Professor Pio Forzatti, Italy*

15.00

OP-IV-6

**Ammendola P., Chirone R., Ruoppolo G., Russo G.**

PRODUCTION OF HYDROGEN FROM THERMO-CATALYTIC DECOMPOSITION OF METHANE IN A FLUIDIZED BED REACTOR

*Istituto di Ricerche sulla Combustione - CNR (Napoli), Italy*

15.20

OP-IV-7

**Pavlova S., Yaseneva P., Sadykov V., Saputina N., Belochapkin S.\*, Ross J.\*\***

SYNTHESIS GAS PRODUCTION FROM BIO-OIL: STEAM REFORMING OF ETHANOL AS A MODEL COMPOUND

*Boreskov Institute of Catalysis SB RAS (Novosibirsk), Russia*

*\*Materials & Surface Science Institute (Limerick), Ireland*

*\*\*University of Limerick (Limerick), Ireland*

15.40

OP-IV-8

**Avgouropoulos G., Papavasiliou J., Ioannides T.**

HYDROGEN PRODUCTION FROM METHANOL OVER COMBUSTION-SYNTHESIZED NOBLE METAL/CERIA CATALYSTS

*Foundation for Research and Technology-Hellas (FORTH), Institute of Chemical Engineering & High Temperature Chemical Processes (ICE-HT) (Patras), Greece*

16.00

OP-IV-9

**Barelko V.V., Ivanyuk A.G.\*, Danishevski A.L.\*, Chepelenko V.N.\*, Bykov L.A.\*\*, Baichtok Yu.K.\*\*, Slovetski D.I.\*\*, Ivanov I.V.\*\*\*, Brizitski O.F.\*\*\*, Terent'ev V.Ya.\*\*\***

A NEW GENERATION OF SUPER-THIN HYDROGEN FILTERING PALLADIUM MEMBRANES (CREATING OF TECHNOLOGY AND DEVELOPMENT OF PRODUCTION)

*Institute of Problems of Chemical Physics RAS (Chernogolovka, Moscow Region), Russia*

*\*FUGP «Moscow Plant on the Treatment of Special Alloys», Moscow, Russia*  
*\*\*JSC “Chemphyst-Alloy LTD” (Chernogolovka, Moscow Region), Russia)*  
*\*\*\*VNIIEF (Sarov). Russia*

**16.20**

**OP-IV-10**

**Ojeda K.A., Ramirez C., Kafarov V.**

EXERGY ANALYSIS OF ENZYMATIC HYDROLYSIS REACTORS FOR  
TRANSFORMATION OF LIGNOCELLULOSIC BIOMASS TO BIOETHANOL

*Universidad Industrial de Santander, Chemical Engineering Department*

*(Bucaramanga), Colombia*

**16.40**

**OP-IV-11**

**Al-Dahhan M.H., Rados N., Shaikh A., Han L., Wu C.**

ADVANCEMENT OF SLURRY BUBBLE COLUMN REACTORS FOR CLEAN  
LIQUID FUELS PRODUCTION

*Washington University in St. Louis (St. Louis), USA*

**17.00**

**OP-IV-12**

**Palmisano P., Russo N., Fino D., Saracco G., Specchia V.**

Pd-DOPED PEROVSKITE CATALYSTS FOR CNG ENGINE'S EMISSION  
CONTROL

*Materials Science and Chemical Engineering Department, Politecnico di Torino*

*(Torino), Italy*

**17.20**

**Closing**

## POSTER PRESENTATIONS

October 1, 16.40

**Section 1. Kinetics of catalytic reactions.** *The Section is dedicated to the 100<sup>th</sup> anniversary of Professor M.I. Temkin, the outstanding specialist in the field of physical chemistry and chemical kinetics*

**PP-I-1 Bokarev D.A., Egorova E.V.**

CONVERSION OF ETHANOL OVER COPPER-BEARING CATALYSTS  
*Lomonosov Moscow State Academy of Fine Chemical Technology (Moscow),  
Russia*

**PP-I-2 Brizhanskaja Ju.A.\*, Brizhanskii L.V.\*, Myshlyavtsev A.V.\*\*\*,  
Myshlyavtseva M.D.\***

LATERAL INTERACTIONS, FINITE MOBILITY AND MULTIPLICITY OF  
STEADY STATES FOR LANGMUIR – HINSHELWOOD MECHANISM.  
MONTE CARLO AND TRANSFER-MATRIX TECHNIQUES

*\*Omsk Technical State University (Omsk), Russia*

*\*\*Institute of Hydrocarbons Processing SB RAS (Omsk), Russia*

**PP-I-3 Leveneur S.\*\*\*, Murzin D.Yu.\*, Salmi T.\*, Estel L.\*\***

KINETIC STUDY AND MODELING OF PERHYDROLYSIS OF PROPIONIC  
ACID USING HETEROGENEOUS CATALYST

*\*Laboratory of Industrial Chemistry and Reaction Engineering, Åbo Akademi  
(Turku/Åbo), Finland*

*\*\*LSPC-Laboratoire de Sécurité des Procédés Chimiques (Mont-Saint-Aignan  
Cedex), France*

**PP-I-4 Virtanen P., Mikkola J.-P., Salmi T.**

SELECTIVE HYDROGENATION OF CINNAMALDEHYDE OVER  
SUPPORTED IONIC LIQUID CATALYSTS (SILCA)

*Process Chemistry Centre, Åbo Akademi University, Laboratory of Industrial  
Chemistry (Turku), Finland*

**PP-I-5 Ghaloum N.**

NON OXIDATIVE REGENERATION METHODS OF DEACTIVATED FCC  
CATALYST IN FLUIDIZED BED REACTOR

*Kuwait Institute for Scientific Research (Safat), Kuwait*

**PP-I-6 Kozlovskiy I.A., Schactlivaya S.V., Kondratiev D.N., Kozlovskiy R.A.,  
Makarov M.G., Suchkov J.P., Kolbakov V.V.\*, Shvets V.F.**

KINETICS OF ESTERIFICATION OF LACTIC ACID BY PRIMARY  
ALCOHOLS

*Mendeleev University of Chemical Technology of Russia (Moscow), Russia*

*\*Nordbiochem Ltd., (Põlva), Estonia*

**PP-I-7 Kozlovskiy R.A., Deriabina N.V., Makarov M.G., Kozlovskiy I.A.,  
Suchkov J.P., Shvets V.F.**

THE NEW METHOD FOR KINETIC SCREENING OF CATALYSTS FOR  
SELECTIVE HYDRATION OF ETHYLENE OXIDE

*Mendeleev University of Chemical Technology of Russia (Moscow), Russia*



- PP-I-8** Kovalyov E.V., Elokhin V.I.  
 STOCHASTIC SIMULATION OF ADSORPTION PROCESSES  
 PERFORMANCE OVER SUPPORTED METAL NANOPARTICLES  
*Boreskov Institute of Catalysis SB RAS (Novosibirsk), Russia*
- PP-I-9** Michalkiewicz B., Jarosińska M.  
 STUDY ON CATALYTIC ESTERIFICATION OF METHANE IN OLEUM  
 CATALYZED BY IODINE  
*Szczecin University of Technology, Institute of Chemical and Environment  
 Engineering (Szczecin), Poland*
- PP-I-10** Ziebro J., Michalkiewicz B.  
 KINETICS OF METHANE OXIDATION OVER NIOBIUM(V) OXIDE  
 CATALYSTS  
*Szczecin University of Technology, Institute of Chemical and Environment  
 Engineering (Szczecin), Poland*
- PP-I-11** Ovchinnikova E.V., Popova G.Ya., Andrushkevich T.V.,  
 Chumachenko V.A.  
 KINETICS STUDIES AND MECHANISM OF  $\beta$ -PICOLINE OXIDATION TO  
 NICOTINIC ACID OVER  $V_2O_5$ - $TiO_2$  CATALYST  
*Boreskov Institute of Catalysis SB RAS (Novosibirsk), Russia*
- PP-I-12** Papavasiliou J., Avgouropoulos G., Ioannides T.  
 MECHANISTIC ASPECTS OF STEAM REFORMING OF METHANOL OVER  
 COPPER-BASED CATALYSTS  
*Foundation for Research and Technology-Hellas (FORTH), Institute of Chemical  
 Engineering & High Temperature Chemical Processes (ICE-HT) (Patras), Greece*
- PP-I-14** Staroverov D.V., Varlamova E.V., Suchkov Yu.P., Shvets V.F.  
 KINETICS OF AN AQUEOUS ALKALI OXIDATION OF BOUNDEDLY  
 WATER-SOLUBLE PRIMARY ALCOHOLS  
*Mendeleyev University of Chemical Technology of Russia (Moscow), Russia*
- PP-I-16** Ivanov E.A., Popova G.Ya., Chesalov Yu.A., Andrushkevich T.V.,  
 Reshetnikov S.I.  
 KINETIC DECOMPOSITION OF FORMIC ACID OVER VANADIA-TITANIA  
 CATALYST  
*Boreskov Institute of Catalysis SB RAS (Novosibirsk), Russia*
- PP-I-17** Kurdiukov A.V., Gorodsky S.N., Temkin O.N.  
 NEW OSCILLATING REACTION: CARBONYLATION OF PROPARGYL  
 ALCOHOL TO DIMETHYL ESTER OF ITACONIC ACID  
*Lomonosov Moscow State Academy of Fine Chemical Technology (Moscow),  
 Russia*
- PP-I-18** Gorodsky S.N., Temkin O.N.  
 NEW OSCILLATING REACTIONS OF ALKYNES CARBONYLATION  
 CATALYZED WITH Pd COMPLEXES  
*Lomonosov Moscow State Academy of Fine Chemical Technology (Moscow),  
 Russia*

**PP-I-20** Georgescu V., Scurtu R., Spasova I.\*, Mehandjiev D.\*  
COMPLETE OXIDATION OF HARMFUL ORGANIC COMPOUNDS OVER  
ALUMINA SUPPORTED Cu-Mn MIXED OXIDE CATALYSTS  
*Institute of Physical Chemistry "Ilie Murgulescu", Romanian Academy  
(Bucharest), Romania*  
*\*Institute of General and Inorganic Chemistry, Bulgarian Academy of Sciences,  
Bulgaria*

**PP-I-25** Arkatova L., Kurina L., Galaktionova L., Kosova N.  
SELECTIVE OXIDATION OF METHANE TO SYNGAS FOR DIMETHYL  
ETHER PRODUCTION  
*Tomsk State University (Tomsk), Russia*

**PP-I-27** Tagiyev D.B., Fatullayeva S.S., Aliyev A.M.  
KINETIC REGULARITIES OF N-PROPYL ALCOHOL OXIDATION  
REACTION OVER METALZEOLITE CATALYST  
*Azerbaijan Medical University (Baku), Azerbaijan*

**PP-I-28** Tagiyev D.B., Starikov R.V.  
KINETICS OF *n*-BUTANE CONVERSION OVER SULFATED MORDENITE-  
ZIRCONIA CATALYST  
*Institute of Petrochemical Processes National Academy of Sciences of Azerbaijan  
(Baku), Azerbaijan*

## **Section 2. Physico-chemical and mathematical fundamentals of the processes in chemical reactors**

**PP-II-1** Glazneva T.S., Sadovskaya E.M., Suknev A.P., Goncharov V.B.,  
Simonova L.G., Paukshtis E.A., Bal'zhinimaev B.S.  
BRØNSTED ACIDITY MEASUREMENT OF FIBERGLASS MATERIALS BY  
H/D-EXCHANGE METHOD IN A PLUG-FLOW REACTOR  
*Boreskov Institute of Catalysis SB RAS (Novosibirsk), Russia*

**PP-II-2** Boyanov B.S., Ivanov K.I.\*  
OPTIMIZING OF CHEMICAL REACTORS OPERATION USING A  
PROGRAM SYSTEM FOR BEST MIXING OF RAW MATERIALS  
*University of Plovdiv (Plovdiv), Bulgaria*  
*\*Agricultural University (Plovdiv), Bulgaria*

**PP-II-3** Samoilenko N.G., Deyun E.V., Korsunskiy B.L., Andrianova Z.S.,  
Kustova L.V.  
THERMAL MODES FOR THE CSTR WITH COMPLEX CHEMICAL  
REACTIONS  
*Semenov Institute of Chemical Physics RAS (Moscow), Russia*

- PP-II-4 Matveev A.V., Kaichev V.V., Prosvirin I.P., Sametova A.A., Vorobev M.A.\* , Gorodetskii V.V., Nieuwenhuys B.E.\*\***  
 DEACTIVATION OF Rh(410) SURFACE IN THE COURSE OF CO OXIDATION UNDER HIGH OXYGEN PRESSURES  
*Boreskov Institute of Catalysis SB RAS (Novosibirsk), Russia*  
 \*Novosibirsk State University (Novosibirsk), Russia  
 \*\*Leiden Institute of Chemistry (Leiden), The Netherlands
- PP-II-5 Oliva C., Cappelli S., Rossetti I., Ballarini N.\*, Cavani F.\*, Forni L.**  
 EPR ENLIGHTENED PHYSICO-CHEMICAL FUNDAMENTALS OF PROPANE ODH OVER V<sub>2</sub>O<sub>5</sub>- SiO<sub>2</sub> and V<sub>2</sub>O<sub>5</sub>-Al<sub>2</sub>O<sub>3</sub>  
*University of Milan, Department of Physical Chemistry and Electrochem (Milan), Italy*  
 \*University of Bologna (Bologna), Italy
- PP-II-6 Havran V., Starkey D., Gram J., Mueller S., Ahmed F., Al-Dahhan M.**  
 HYDRODYNAMICS OF GAS-SOLID FLUIDIZED SPOUTED BEDS USING OPTICAL PROBES AND GAMMA RAY COMPUTED TOMOGRAPHY  
*Washington University in St. Louis (St. Louis), USA*
- PP-II-7 Zakharov V.P., Noskov A.S.**  
 CFD-CALCULATION OF MALDISTRIBUTION OF EFFECTIVE HEAT CONDUCTIVITY COEFFICIENT IN A REGULAR PACKING OF SPHERICAL PARTICLES  
*Boreskov Institute of Catalysis SB RAS (Novosibirsk), Russia*
- PP-II-8 Semendyaeva N.L., Makeev A.G.**  
 INVESTIGATION OF NONLINEAR PATTERN FORMATION IN CATALYTIC CO OXIDATION BY MEANS OF PARAMETER CONTINUATION AND JACOBIAN-FREE NEWTON-KRYLOV METHODS  
*Lomonosov Moscow State University (Moscow), Russia*
- PP-II-13 Gumerov A.M., Ekimova A.M., Davletbaeva I.M.**  
 MATHEMATICAL MODELLING OF THE PROCESS OF OBTAINING ARTIFICIAL DRYING OIL  
*Kazan State Technological University, Academy of sciences of Republic of Tatarstan (Kazan, Tatarstan), Russia*

### **Section 3. Catalytic processes' development and reactors design: modeling, optimization, new catalyst application**

- PP-III-1 Baronskaya N.A., Khassin A.A., Smirnov E.I. , Yurieva T.M.**  
 VARIANTS OF THE CATALYST BED WITH CONTROLLED TEMPERATURE PROFILE IN TUBULAR DEVICE FOR THE SINGLE-STAGE WATER GAS SHIFT PROCESS  
*Boreskov Institute of Catalysis SB RAS (Novosibirsk), Russia*

**PP-III-2 Chekantsev N.V., Ivanchina E.D.**

MATHEMATICAL MODELING OF PENTANE-HEXANE FRACTION ISOMERIZATION PROCESS ON SI-2 CATALYST

*Tomsk Polytechnic University (Tomsk), Russia*

**PP-III-3**

**Di Giulio S., Faraldi P.\*, Russo N., Fino D., Saracco G., Specchia V.**  
PHOTOCATALYTIC SELF CLEANING SURFACES FOR HOUSEHOLD COOLING APPLIANCES

*Materials Science and Chemical Engineering Department, Politecnico di Torino (Torino), Italy*

*\*Indesit Company, Innovation and Technology Department (Fabriano (AN), Italy)*

**PP-III-4 Dobrego K.V., Koznacheev I.A.**

OPTIMIZATION AND SCALING UP OF THE RECIPROCAL FLOW REACTORS OF FILTRATION COMBUSTION FOR THE TASKS OF PARTIAL OXIDATION OF METHANE AND VOCs OXIDATION

*Heat and Mass Transfer Institute, National Academy of Sciences of Belarus (Minsk), Belarus*

**PP-III-5 Essakhi A., Löfberg A., Paul S., Supiot P.\*, Mutel B.\*, Le Courtois V., Bordes-Richard E.**

WASHCOATS FOR STRUCTURED REACTORS IN PROPANE OXIDATION. V<sub>2</sub>O<sub>5</sub> SUPPORTED ON TiO<sub>2</sub> WASHCOAT DEPOSITED ON METALLIC PLATES AND FOAMS

*Unité de Catalyse et de Chimie du Solide, Université des Sciences et Technologies de Lille (Villeneuve d'Ascq cedex), France*

*\*Laboratoire de Génie des Procédés d'Interactions Fluides Réactifs-Matériau, Université des Sciences et Technologies de Lille, (Villeneuve d'Ascq cedex), France*

**PP-III-6 Faraldi P., Palmisano P.\*, Russo N.\*, Fino D.\*, Saracco G.\*, Specchia V. \***

CATALYTIC SELF CLEANING PROCESS FOR DOMESTIC OVEN

*Indesit Company (Fabriano (AN)), Italy*

*\*Materials Science and Chemical Engineering Department, Politecnico di Torino (Torino), Italy*

**PP-III-7 Fetisova V.A., Malahov E.V., Ivashkina E.N.**

ALKYLATION REACTOR MODELING IN LINEAR ALKYL BENZENES PRODUCTION

*Tomsk Polytechnic University (Tomsk), Russia*

**PP-III-8 Furfori S., Russo N., Fino D., Saracco G., Specchia V.**

PEROVSKITE CATALYSTS FOR NO REDUCTION WITH H<sub>2</sub>

*Politecnico di Torino (Torino), Italy*

**PP-III-9 Hartmann V.L.**

COMPARISON OF IRREVERSIBLE GAS-SOLID REACTION BEHAVIOR IN PLUG-FLOW AND GRADIENT-FREE REACTORS

*JSC Novomoskovsk Institute of Nitrogen Industry (Novomoskovsk), Russia*

**PP-III-10 Jiménez F., Kafarov V.V., Nuñez M.\*, Filho R.M.\*\***

SIMULTANEOUS HYDROGENATION OF SULFUR, NITROGEN AND AROMATIC COMPOUNDS IN HEAVY PETROLEUM FRACTIONS OVER NiMo/ $\gamma$ -Al<sub>2</sub>O<sub>3</sub> CATALYSTS

*Industrial University of Santander, Chemical Engineering Department (Bucaramanga), Colombia*

*\*Colombian Petroleum Institute -ICP (Piedecuesta), Colombia*

*\*\*Campinas State University (Campinas, S.P), Brazil*

**PP-III-11 Józwiak W.K.**

LOW TEMPERATURE OXIDATION OF CARBON MONOXIDE ON POTASSIUM PROMOTED GOLD DISPERSED on Fe<sub>2</sub>O<sub>3</sub>, TiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub> SUPPORTS

*Technical University of Lodz, Institute of General and Ecological Chemistry (Lodz), Poland*

**PP-III-12 Kravtsov A.V., Ivanchina E.D., Ivashkina E.N., Yuriev E.M.**

IMPROVING THE PROCESS OF HIGHER PARAFFIN DEHYDROGENATION ON THE BASIS OF NONSTATIONARY KINETIC MODEL

*Tomsk Polytechnic University (Tomsk), Russia*

**PP-III-13 Matatov-Meytal U., Sheintuch M.**

POTENTIAL OF WOVEN FIBROUS CATALYTIC CLOTHS IN FLOW REACTOR

*Dept. Chemical Engineering, Technion - Israel Institute of Technology (Haifa), Israel*

**PP-III-14 Palmisano G.\*\*\*, Loddo V.\*, Yurdakal S.\*\*\*\*, Augugliaro V.\*, Ciriminna R.\*\*, Di Paola A.\*\*\*, Pagliaro M.\*\***

A REACTOR FOR PHOTOELECTROCATALYTIC OXIDATION OF AROMATIC ALCOHOLS

*\*Dipartimento di Ingegneria Chimica dei Processi e dei Materiali – Università degli Studi di Palermo (Palermo), Italy*

*\*\*Istituto per lo Studio dei Materiali Nanostrutturati – CNR – Via Ugo La Malfa, (Palermo), Italy*

*\*\*\*Kimya Bölümü, Fen Fakültesi – Anadolu Üniversitesi – Yunus Emre Kampüsü (Eskişehir), Turkey*

**PP-III-15 Ivanchina E.D., Stankevich V.S.**

COMPUTER MONITORING OF CATALYTIC REFORMING PROCESS IN SEMI-REGENERATIVE CATALYTIC REFORMER

*Tomsk Polytechnic University (Tomsk), Russia*

**PP-III-16 Sulman E., Matveeva V., Demidenko G., Bykov A., Doluda V., Lakina N., Nikoshvili L., Sulman M., Tyamina I., Valetsky P.\*, Tsvetkova I.\*, Bronstein L.\*\***

NANOSTRUCTURED POLYMERIC METAL-CONTAINING NANOCOMPOSITES AS EFFECTIVE NANOCATALYSTS IN REACTIONS OF FINE ORGANIC SYNTHESIS

*Tver Technical University (Tver), Russia*

*\*Nesmeyanov Institute of Organoelement Compounds RAS (Moscow), Russia*

*\*\*Indiana University, Department of Chemistry (Bloomington), USA*

**PP-III-17 Vernikovskaya N.V., Kashkin V.N., Zolotarskii I.A., Kagyрманова A.P., Andrushkevich T.V.**

GAS PHASE OXIDATION OF FORMALDEHYDE INTO FORMIC ACID ON A V/Ti CATALYST: 2. DESIGN OF A TUBULAR REACTOR BY MATHEMATICAL MODELING

*Boreskov Institute of Catalysis SB RAS (Novosibirsk), Russia*

**PP-III-18 Yuriev E., Ivashkina E., Ivanchina E., Kolupaev A.**

DEVELOPMENT OF INDUSTRIAL CATALYST SELECTIVITY IN THE HYDROGENATION PROCESS OF DIENES C<sub>9</sub>-C<sub>14</sub>

*Tomsk Polytechnic University (Tomsk), Russia*

**PP-III-19 Zhesko T.E., Boyarskiy V.P., Tereshchenko G.F.**

NEW HOMOGENEOUS CATALYTIC SYSTEMS FOR ARYL- OR ARYLALKYL ACIDS PRODUCTION AND UTILIZATION OF PERSISTENT ORGANIC POLLUTANTS - POLYCHLOROBIPHENYLS VIA CARBONYLATION

*St. Petersburg Scientific Center RAS (St. Petersburg), Russia*

**PP-III-20 Ayude M.A., Martínez O.M.\*, Cassanello M.C.\*\*\*, Haure P.M.**

MODELLING OF PERIODIC OPERATION IN TRICKLE BED REACTORS: INFLUENCE OF THE UNSTEADY STATE HYDRODYNAMICS

*INTEMA, CONICET, UNMdP (Mar del Plata), Argentina*

*\*Dep. Ing. Química, FI-UNLP-CINDECA (La Plata), Argentina*

*\*\*PINMATE, Dep. Industrias, FCEyN-UBA Int. (Buenos Aires), Argentina*

**PP-III-21 Kozlovskiy I.A., Kustov A.V., Sapunov V.N.**

REACTOR DESIGN OF THE DIISOBUTYLPHTHALATE MANUFACTURE

*Mendeleev University of Chemical Technology of Russia (Moscow), Russia*

**PP-III-22 Ivanov K.\*, Dimitrov D.\*, Boyanov B.\*\***

OPTIMIZATION OF THE METHANOL OXIDATION OVER IRON-MOLYBDATE CATALYSTS

*\*Agricultural University, Department of Chemistry (Plovdiv), Bulgaria*

*\*\*Dept. of Chemistry, University of Plovdiv (Plovdiv), Bulgaria*

- PP-III-23 Isupova L.A., Sutormina E.F., Kulikovskaya N.A., Marchuk A.A., Zakharov V.P., Zolotarskii I.A.**  
EXPERIMENTAL INVESTIGATION OF NO YIELD VERSUS MONOLITHS GEOMETRY IN AMMONIA OXIDATION PROCESS  
*Boreskov Institute of Catalysis SB RAS (Novosibirsk), Russia*
- PP-III-24 Lukyanov B.N., Makarshin L.L., Andreev D.V., Parmon V.N.**  
CATALYTIC REACTORS WITH HYDROGEN MEMBRANE SEPARATION  
*Boreskov Institute of Catalysis SB RAS (Novosibirsk), Russia*
- PP-III-25 Maduna Valkaj K., Tomašić V., Zrncevic S.**  
ACTIVITY OF Cu/ZSM5 CATALYSTS FOR THE OXIDATION OF PHENOL WITH HYDROGEN PEROXIDE  
*Faculty of Chemical Engineering and Technology, University of Zagreb (Zagreb), Croatia*
- PP-III-26 Muliashov S.A., Belianin D.V., Kozlovskiy R.A., Makarov M.G., Shvets V.F.**  
SIMULATION AND OPTIMISATION OF SEMIBATCH REACTOR OF ANIONIC POLYMERIZATION OF PROPELENE OXIDE  
*Mendeleev University of Chemical Technology of Russia (Moscow), Russia*
- PP-III-27 Muliashov S.A., Belianin D.V., Kozlovskiy R.A.**  
SIMULATION OF LARGE-SCALE FATTY AMINE ETHOXYLATION REACTOR  
*Mendeleev University of Chemical Technology of Russia (Moscow), Russia*
- PP-III-28 Pakhomov N.A., Kashkin V.N., Molchanov V.V., Noskov A.S.**  
DEHYDROGENATION OF C1-C5 PARAFFINS ON  $\text{Cr}_2\text{O}_3/\text{Al}_2\text{O}_3$  CATALYSTS IN FLUIDIZED AND FIXED BED REACTORS  
*Boreskov Institute of Catalysis SB RAS (Novosibirsk), Russia*
- PP-III-29 Palomares A.E., Franch C., Corma A.**  
A STUDY ON THE ACTIVITY OF A Pd/(Cu or Sn) CATALYST FOR THE DENITRIFICATION OF NATURAL WATER IN DIFFERENT REACTOR SYSTEMS  
*Instituto de Tecnologia Quimica (UPV-CSIC), Universidad Politecnica de Valencia (Valencia), Spain*
- PP-III-31 Kozlovskiy R.A., Kozlovskiy I.A., Schactlivaya S.V., Makarov M.G., Suchkov J.P., Kolbakov V.V.\*, Shvets V.F.**  
METHOD FOR PRODUCING OF METHYL LACTAT  
*Mendeleev University of Chemical Technology of Russia (Moscow), Russia*  
*\*Nordbiochem Ltd. (Põlva), Estonia*

**PP-III-32 Salvat W.I.\* , Mariani N.J.\*\* , Martínez O.M.\*\* , Barreto G.F.\*\***

ON THE ANALYSIS OF PACKED BED STRUCTURE OF SPHERICAL PARTICLES IN CYLINDRICAL CONTAINERS

*\*Departamento de Ingeniería Química, Facultad de Ingeniería Universidad Nacional de La Plata (La Plata), Argentina*

*\*\*Centro de Investigación y Desarrollo en Ciencias Aplicadas “Dr. J. J. Ronco” (CINDECA) CONICET- Universidad Nacional de La Plata (La Plata), Argentina*

**PP-III-33 Zhizhina E.G., Odyakov V.F., Simonova M.V., Matveev K.I.**

PRODUCTION OF METHYLETHYLKETONE BY OXIDATION OF n-BUTENES WITH DIOXYGEN IN THE PRESENCE OF HOMOGENEOUS CATALYST (Pd + HETEROPOLY ACID)

*Boreskov Institute of Catalysis SB RAS (Novosibirsk), Russia*

**PP-III-34 Pai Z.P., Parmon V.N., Pai V.V.\***

CLEANING OF CRACK SURFACES OF METAL ALLOY PARTICLES

*Boreskov Institute of Catalysis SB RAS (Novosibirsk), Russia*

*\*Lavrentiev Institute of Hydrodynamics SB RAS (Novosibirsk), Russia*

**PP-III-35 Pai Z.P., Tolstikov A.G., Berdnikova P.V., Khlebnikova T.B., Roor O.N., Selivanova N.V., Gusarova N.K.\* , Malysheva S.F.\* , Ivanova N.I.\* , Trofimov B.A.\***

CATALYTIC OXIDATION OF ORGANIC SUBSTRATES WITH HYDROGEN PEROXIDE IN TWO-PHASE SYSTEMS

*Boreskov Institute of Catalysis SB RAS (Novosibirsk), Russia*

*\*Favorsky Institute of Chemistry SB RAS (Irkutsk), Russia*

**PP-III-36 Selivanova N.V., Berdnikova P.V., Pai Z.P.**

THE ORGANIC COMPOUNDS OXIDATION PROCESSES IN THE PRESENCE OF HOMOGENEOUS CATALYSTS

*Boreskov Institute of Catalysis SB RAS (Novosibirsk), Russia*

**PP-III-37 Somacescu S.\* , Popescu I.\*\* , Săndulescu I.\*\* , Pârvulescu V.\* , Osiceanu P.\* , Su B.L.\*\*\***

MESOPOROUS CERIA-PRASEODYMIA CATALYSTS FOR OXIDATION OF HYDROCARBONS

*\*Institute of Physical Chemistry (Bucharest), România*

*\*\*University of Bucharest, Faculty of Chemistry (Bucharest), Romania*

*\*\*\*University of Namur (FUNDP), Laboratoire de Chimie des Matériaux Inorganiques (Namur), Belgium*

**PP-III-39 Zagoruiko A.N., Arendarskii D.A., Klenov O.P., Bal'zhinimaev B.S.**  
CATALYTIC REACTORS WITH STRUCTURED BEDS OF FIBER-GLASS CATALYSTS

*Boreskov Institute of Catalysis SB RAS (Novosibirsk), Russia*

#### **Section 4. Catalytic technologies in fuel and energy production**

##### **- production of hydrogen**



- *production of environmental friendly fuels*
- *environmentally friendly engineering*

**PP-IV-1 Zagoruiko A.N., Okunev A.G., Trukhan S.N.**

AUTOTHERMAL SORPTION-ENHANCED STEAM REFORMING OF HYDROCARBONS WITH SUPERADIABATIC COMBUSTION SORBENT REGENERATION

*Boreskov Institute of Catalysis SB RAS (Novosibirsk), Russia*

**PP-IV-4 Nizovskii A.I., Poljanskaja T.V., Kruchinin V.N.**

INTERACTION OF ACTIVATED ALUMINIUM WITH WATER: A MECHANISM STUDY

*Boreskov Institute of Catalysis SB RAS (Novosibirsk), Russia*

**PP-IV-6 Maniecki T.P., Bawolak K., Jozwiak W.K.**

THE 5%Ni-2%Au/Al<sub>3</sub>CrO<sub>6</sub> SYSTEMS AS A CATALYSTS FOR SYNGAS AND HYDROGEN PRODUCTION

*Technical University of Lodz (Lodz), Poland*

**PP-IV-7 Parvulescu V., Somacescu S., Osiceanu P., Cojocar A.\*, Vaireanu D-I.\*, Su B.L.\*\*.**

MESOPOROUS ANODES BASED ON YSZ DOPED WITH TiO<sub>2</sub> OR CeO<sub>2</sub> FOR DIRECT OXIDATION OF HYDROCARBONS IN ELECTROCATALYTIC MEMBRANE REACTOR

*Institute of Physical Chemistry, Romanian Academy of Sciences (Bucharest), Romania*

*\*University Politehnica of Bucharest, Faculty of Applied Chemistry and Materials Science (Bucharest), Romania*

*\*\*University of Namur (FUNDP), Laboratoire de Chimie des Matériaux Inorganiques (Namur), Belgium*

**PP-IV-8 Rutigliano L., Fino D., Saracco G., Specchia V., Spinelli P.**

ADVANCED OXIDATION PROCESS FOR THE WATER CONDENSATES RECYCLING IN SHUTTLE ORBITER

*Politecnico di Torino (Torino), Italy*

**PP-IV-9 Sulman M., Lugovoy Yu.\*, Kosivtsov Yu., Sulman E., Alfyorov V., Molchanov V., Tyamina I.**

PROCESSING OF POLYMERIC CORD OF USED AUTOMOBILE TYRES BY LOW-TEMPERATURE CATALYTIC PYROLYSIS

*Tver Technical University (Tver), Russia*

*\*Tver State University (Tver), Russia*

**PP-IV-10 Torbati R.\*, Lisi L.\*\*., Cimino S.\*\*., Russo G.\*.\*\***

EFFECT OF SULPHUR ON THE CATALYTIC PARTIAL OXIDATION OF METHANE OVER RHODIUM BASED CATALYSTS

*\*Dipartimento di Ingegneria Chimica – Università degli Studi di Napoli Federico II (Napoli), Italy*

*\*\*Istituto di Ricerche sulla Combustione - C.N.R. (Napoli), Italy*

- PP-IV-11 Soloviev S.A., Kapran A.Yu., Orlyk S.N.**  
 OXIDATIVE CONVERSION OF METHANE AND METHANOL ON  
 STRUCTURED CATALYSTS M/Al<sub>2</sub>O<sub>3</sub>/CORDIERITE (M=Ni, Cu, Zn)  
*Pisarzhevsky Institute of Physical Chemistry, National Academy of Sciences of  
 Ukraine (Kyiv), Ukraine*
- PP-IV-12 Vyatkin A.F., Redkin A.N., Bezhok V.S., Lapin N.V.**  
 LOW-TEMPERATURE REFORMING OF ETHANOL ON NICKEL  
 CATALYST  
*Institute of Microelectronics Technology and High-Purity Materials  
 (Chernogolovka, Moscow Region), Russia*
- PP-IV-13 Zagoruiko A.N., Bal'zhinimaev B.S., Paukshtis E.A., Simonova L.G.,  
 Vanag S.V., Zykov A.M.\*, Anichkov S.N.\*, Hutson N.D.\*\***  
 CATALYTIC FLUE GAS CONDITIONING IN ELECTROSTATIC  
 PRECIPITATORS OF COAL-FIRED POWERPLANTS  
*Boreskov Institute of Catalysis SB RAS (Novosibirsk), Russia*  
 \*All-Russia Thermal Engineering Institute (Moscow), Russia  
 \*\*U.S. Environmental Protection Agency (Washington), USA
- PP-IV-14 Danilova M.M.\*\*\*, Sabirova Z.A.\*\*\*\*, Kirillov V.A.\*\*\*, Kuzin N.A.\*\*\*,  
 Zaikovskiy V.I.\*, Kriger T.A.\*, Rudina N.A.\***  
 RIBBON POROUS NICKEL BASED CATALYSTS FOR PARTIAL  
 OXIDATION OF METHANE TO SYNTHESIS GAS  
*\*Boreskov Institute of Catalysis (Novosibirsk), Russia*  
 \*\*Novosibirsk State University (Novosibirsk), Russia
- PP-IV-15 Lermontov A.S., Yakimova M.S., Polezhaeva O.S.\*, Tretyakov V.F.,  
 Ivanov V.K.\***  
 ETHANOL CONVERSION TO HYDROGEN CONTAINING GAS OVER  
 COPPER SUPPORTED ON NANOCRYSTALLINE CERIA  
*Topchiev's Institute of Petrochemical Synthesis RAS (Moscow), Russia*  
 \*Kurnakov Institute of General and Inorganic Chemistry RAS (Moscow), Russia
- PP-IV-16 Makarshin L.L., Andreev D.V., Gribovskii A.G., Khantakov R.M.,  
 Parmon V.N.**  
 A HIGH-EFFICIENT MICROREACTOR WITH Zn/TiO<sub>2</sub> CATALYST FOR  
 METHANOL STEAM REFORMING  
*Boreskov Institute of Catalysis SB RAS (Novosibirsk), Russia*
- PP-IV-17 Ohnishi C.H., Yoshino H., Imamura S., Iwamoto S., Inoue M.**  
 DIRECT DECOMPOSITION OF NITROUS OXIDE OVER A K-DOPED Co<sub>3</sub>O<sub>4</sub>  
 CATALYST IN THE PRESENCE OF OXYGEN  
*Department of Energy and Hydrocarbon Chemistry, Graduate School of  
 Engineering, Kyoto University (Kyoto), Japan*
- PP-IV-18 Sabirova Z.A., Danilova M.M., Kuzin N.A., Kirillov V.A.,  
 Zaikovskii V.I., Kriger T.A.**  
 NICKEL CATALYSTS BASED ON POROUS NICKEL FOR METHANE  
 STEAM REFORMING TO SYNTHESIS GAS  
*Boreskov Institute of Catalysis SB RAS (Novosibirsk), Russia*

**PP-IV-19 Szoboszlai Zs., Hancsók J., Kalló D.\*, Holló A.\*\***  
SELECTION OF FAVOURABLE FEED COMPOSITION OF LIGHT  
NAPHTHA ISOMERIZATION  
*University of Pannonia, Department of Hydrocarbon and Coal Processing  
(Veszprém), Hungary*  
*\*Chemical Research Center, Institute of Chemistry, Hungarian Academy of  
Sciences, (Budapest), Hungary*  
*\*\*MOL Hungarian Oil&Gas Plc (Százhalombatta), Hungary*

**PP-IV-20 Tretyakov V.F., Iolov A.M., Talyshinskiy R.M., Burdeynaya T.N.,  
Lermontov A.S.**  
FORMALDEHYDE FORMATION DURING NON-OXIDATIVE  
DEHYDROGENATION OF METHANOL  
*Topchiev Institute of Petrochemical Synthesis RAS (Moscow), Russia*

**PP-IV-21 Tungatarova S.A., Dossumov K., Popova N.M., Salakhova R.Kh.,  
Baizhumanova T.S., Turlygozhaeva Zh.D., Sass A.S., Komashko L.V.,  
Grigorieva V.P.**  
PRODUCTION OF HYDROGEN-RICH FUEL GAS BY SHORT CONTACT  
TIME OXIDATIVE CONVERSION OF METHANE  
*Sokolsky Institute of Organic Catalysis and Electrochemistry (Almaty),  
Kazakhstan*

**PP-IV-22 Dossumov K., Gilmundinov Sh.A.**  
INFLUENCE OF COMPOSITION OF THE SECONDARY CARRIER ON THE  
BASE OF TRANSITION METALS SUPPORTED ON A BLOCK METAL  
SCELETON IN REACTION OF OXIDATION OF METHANE  
*Sokolsky Institute of Organic Catalysis and Electrochemistry (Almaty),  
Kazakhstan*

**PP-IV-28 Sahki R., Rabia C.\*, Hocine S.**  
PARTIAL OXIDATION OF METHANE TO C<sub>1</sub>-OXYGENATES OVER  
METALLIC OXIDES CATALYSTS  
*Laboratoire de Chimie Appliquée et de Génie Chimique; Université Mouloud  
Mammeri (Tizi-Ouzou), Algeria*  
*\*Laboratoire de Chimie du Gaz Naturel; Institut de Chimie USTHB (Alger),  
Algeria*

### **Section 5. Catalytic processing of renewable sources: fuel, energy, chemicals**

**PP-V-1 Gavello G., Ambrosio E.P., Icardi U.A., Specchia S., Penazzi N.,  
Specchia V., Saracco G.**  
INFLUENCE OF ICE ON MEAs of PEM-FCs  
*Politecnico di Torino (Torino) Italy*

**PP-V-2 Shtertser N.V., Babushkin D.E., Khassin A.A.**  
DIRECT OILS HYDROGENATION TO ALCOHOLS AND HYDROCARBONS  
*Boreskov Institute of Catalysis SB RAS (Novosibirsk), Russia*

- PP-V-3 Simakova O.A.\*\*\*, Simonov P.A.\*\*\*, Simakova I.L.\*\*\*, Romanenko A.V.\*\*\*, Murzina E.V.\*, Tokarev A.V.\*, Murzin D.Yu.\***  
 DEVELOPMENT OF Pd/SIBUNIT CATALYSTS PREPARATION  
 TECHNIQUE FOR SYNTHESIS OF CHEMICALS FROM RENEWABLES  
*\*Åbo Akademi University (Turku/Åbo), Finland*  
*\*\*Boreskov Institute of Catalysis (Novosibirsk), Russia*
- PP-V-4 Harada T., Sugita T., Morita Y., Torimoto T.\*, Ikeda S., Matsumura M.**  
 Pt NANOPARTICLE-HOLLOW POROUS CARBON NANOCOMPOSITES AS  
 THE MICROREACTOR FOR REDUCTIVE AMINATION  
*Research Center for Solar Energy Chemistry, Osaka University (Toyonaka, Osaka), Japan*  
*\*Department of Crystalline Materials Science, Graduate School of Engineering, Nagoya University (Nagoya), Japan*
- PP-V-5 Ilushka I.V., Kolbakov V.V.\*, Shvets V.F.**  
 THE PROCESS FOR PRODUCING ORGANIC ACIDS BY MEMBRANE  
 BIOREACTOR SYSTEM  
*Mendeleev University of Chemical Technology of Russia (Moscow), Russia*  
*\*Nordbiochem Ltd. (Põlva), Estonia*
- PP-V-6 Khlopov D.S., Varlamova E.V., Emelianova I.S., Kozlovsky R.A., Kozlovsky I.A., Suchkov J.P., Kolbakov V.V.\*, Shvets V.F.**  
 REACTORS FOR SYNTHESIS OF LACTIDE  
*Mendeleev University of Chemical Technology of Russia (Moscow), Russia*  
*\*Nordbiochem Ltd. (Põlva), Estonia*
- PP-V-7 Korneev I.S., Hinskiy S.N., Kozlovsky R.A., Suchkov J.P., Shvets V.F., Danilov I.V.\*, Sidorov A.M.\*, Yuzhnov N.M.\***  
 METHOD FOR COMPLEX PROCESSING OF POLYMER WASTES INTO  
 FUEL FRACTIONS  
*Mendeleev University of Chemical Technology of Russia (Moscow), Russia*  
*\*Research and Development Institute of Power Engineering (Moscow), Russia*
- PP-V-8 Suchkov J.P., Kostin A.M., Korneev I.S., Hlopov D.S., Kozlovsky R.A., Shvets V.F.**  
 THE METHOD FOR PRODUCING OF MOTOR FUEL COMPONENTS FROM  
 VEGETABLE OILS AND ANIMAL FATS  
*Mendeleev University of Chemical Technology of Russia (Moscow), Russia*
- PP-V-9 Hancsók J., Magyar S., Kalló D.\***  
 UPGRADING OF FCC-GASOLINES ON Pt,Pd/ZEOLITE CATALYSTS  
*University of Pannonia, Dep. Hydrocarbon & Coal Proc., (Veszprém), Hungary*  
*\*Chemical Research Centre, Institute of Chemistry, Hungarian Academy of Sciences (Budapest), Hungary*

- PP-V-10 . Macario A., Giordano G., Onida B.\*, Forni L.\*\***  
 TRIGLYCERIDES ALCOHOLYSIS CATALYZED BY HETEROGENEOUS CATALYSTS FOR BIODIESEL PRODUCTION  
*Dept. of Chemical Engineering & Materials, University of Calabria (Rende), Italy*  
*\*Dept. Materials Science & Chemical Engineering, Politecnico di Torino (Torino), Italy*  
*\*\*Dept. Industrial Chemistry & Materials, Univ. of Bologna (Bologna), Italy*
- PP-V-11 Makarfi Y.I., Yakimova M.S.\*, Koval L.M.\*\*, Erofeev V.I.\*\*, Talyshinsky R.M.\*, Tretyakov V.F.\*, Lermontov A.S.\***  
 BIOETHANOL CONVERSION ON ZEOLITE CATALYST: EFFECT OF WATER TO ETHANOL RATIO  
*Lomonosov Moscow State Academy of Fine Chemical Technology (Moscow), Russia*  
*\*Topchiev Institute of Petrochemical Synthesis RAS (Moscow), Russia*  
*\*\*Tomsk State University, Chemistry Department (Tomsk), Russia*
- PP-V-12 Margulis N.I., Egorova E.V.**  
 PRODUCTION OF METHYL FORMATE AND FORMALDEHYDE BY CATALYTIC METHANOL CONVERSION  
*Lomonosov Moscow State Academy of Fine Chemical Technology (Moscow), Russia*
- PP-V-13 Nagy G., Hancsók J., Pölczmann Gy., Varga Z\*., Kalló D.\*\***  
 INVESTIGATION OF HYDRODEAROMATIZATION OF GAS OILS ON NOBLE METAL/SUPPORT CATALYSTS  
*University of Pannonia, Institute of Chemical and Process Engineering, Department of Hydrocarbon and Coal Processing (Veszprém), Hungary*  
*\*MOL Hungarian Oil and Gas Co.(Százhalombatta), Hungary*  
*\*\*Chemical Research Centre, Institute of Chemistry, Hungarian Academy of Sciences (Budapest), Hungary*
- PP-V-14 Sánchez E., Ojeda K., Kafarov V.**  
 SIMULATION OF TRANSESTERIFICATION REACTORS TO BIODIESEL PRODUCTION FROM BIOETHANOL AND PALM OIL  
*Universidad Industrial de Santander, Chemical Engineering Department (Bucaramanga), Colombia*
- PP-V-15 Tesser R., Di Serio M., Santacesaria E.**  
 THE KINETICS OF METHANOL STEAM REFORMING  
*Dipartimento di Chimica dell'Università di Napoli FEDERICO II (Napoli), Italy*
- PP-V-20 Mojovic Z., Bankovic P., Milutinovic-Nikolic A., Dostanic J., Jovic- Jovicic N., Jovanovic D.**  
 Al,Cu-PILLARED CLAYS AS CATALYST IN ENVIRONMENTAL PROTECTION  
*Institute of Chemistry Technology and Metallurgy, Department of Catalysis and Chemical Engineering (Belgrade), Serbia*