



**Scientific Program of the
Third International Conference
CATALYSIS FOR RENEWABLE SOURCES:
FUEL, ENERGY, CHEMICALS**

Catania, Sicily, Italy, September 6-11, 2015

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

University of Messina, Sicily, Italy

<http://conf.nsc.ru/CRS3>

The CRS-3 conference is a satellite event of the XII EUROPEAN CONGRESS ON CATALYSIS:
CATALYSIS: BALANCING THE USE OF FOSSIL AND RENEWABLE RESOURCES to be held in
Kazan, Russia on August 30 – September 4, 2015

www.EuropaCat2015.com

**Conference Proceedings:
Journal «Catalysis for Sustainable Energy» (de Gruyter Open access)**



CRS-3 CONFERENCE PARTNER

The organizers express their gratitude for the financial support of the conference:



INTERNATIONAL SCIENTIFIC COMMITTEE

Chairs:

Valentin Parmon, *Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia*

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Parasuraman Selvam, *Indian Institute of Technology, India*





Sergei Varfolomeev, *Emanuel Institute of Biochemical Physics RAS, Russia*

Vadim Yakovlev, **Chairman of the Organizing Committee**,

Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia

SCIENTIFIC PROGRAM

General scientific topical issues and key areas of the conference program are the following:

-  ***Catalysis in dendrochemistry for valuables production***
 - Catalytic systems for hemicellulose depolymerization
 - Catalytic processing of tall oil and tar, Selective conversion of sugars
 - Catalytic transformations of CO₂ to fine chemicals
-  ***Biomass derivatives in petrochemistry***
 - Catalyst application for clean syn-gas and clean hydrogen production
 - Lipids in petrochemical synthesis
-  ***Catalytic processes for biofuels production***
 - Catalytic interesterification and hydrocracking of lipids to kerosene and diesel fractions
 - Catalytic approaches for the processing of pyrolysis biomass products
-  ***Bio-Photo-/Electro-catalytic conversion of renewables***
 - Bio-catalysis for chemicals production
 - Photo-catalytic for environmental protection
 - Electro-catalytic conversion of renewables

School of Young Scientists is included into the CRS-3 Scientific Program

September 7, Monday

8.45 OPENING

PEGASO Hall

PLENARY LECTURES

Chairperson – Professor Sergei Varfolomeev, Emanuel Institute of Biochemical Physics RAS, Moscow, Russia

9.00

PL-1 Professor Siglinda Perathoner
INTEGRATING BIO-AND SOLAR REFINERIES: AN EFFECTIVE NEW OPTION
University of Messina, Italy

10.00

PL-2 Professor Mark Tsodikov
PERSPECTIVE CATALYTIC REACTIONS FOR DIRECT FUELS AND BULK CHEMICALS PRODUCTION
BASED ON BIO OXYGENATES
A.V. Topchiev Institute of Petrochemical Synthesis RAS, Moscow, Russia

11.00 – 11.30

Coffee break

KEYNOTE LECTURES

Chairperson – Professor Raffaele Pirone, Politecnico di Torino, Italy

11.30

KL-1 Professor Parasuraman Selvam^{1,2,3}, Anuradha S.¹, Krishna N.V.¹
ACETONATION OF D-GLUCOSE OVER SULPHONIC ACID FUNCTIONALIZED ORDERED
MESOPOROUS SILICA
¹*National Centre for Catalysis Research, Department of Chemistry, Indian Institute of Technology,
Madras, India*
²*New Industry Creation Hatchery Center, Tohoku University, Aramaki, Japan*
³*School of Science and Health, University of Western Sydney, Penrith, Australia*

12.00

KL-2 Professor Simoni Plentz Meneghetti
CATALYSIS TO PRODUCE CHEMICAL SUPPLIES FROM RENEWABLE SOURCES
*Universidade Federal de Alagoas, Instituto de Química e Biotecnologia, Laboratório de
Biocombustíveis e Energia – LaBEn, Maceió, Brazil*

12.30-14.30

Lunch

September 7, Monday, 14.30 – 16.10
PEGASO Hall

ORAL PRESENTATIONS

SECTION I. Catalysis in dendrochemistry for valuables production

Chairperson – Professor Yong Wang, Washington State University, USA

14.30

**OP-I-1. Ogo S.¹, Sekine H.¹, Nishio T.¹, Onda A.², Sekine Y.¹
ONE-POT DIRECT CONVERSION OF BIOMASS CELLULOSE INTO C₃ and C₄ OLEFINS OVER Pt/H-USY
ZEOLITE CATALYST**

¹Waseda University, Tokyo, Japan

²Kochi University, Kochi, Japan

14.50

**OP-I-2. Beltramini J.N.¹, Shrotri A.², Atanda L.¹, Mukundam S.¹
MECHANO-CATALYTIC DEPOLYMERISATION AS A TOOL FOR LIGNOCELLULOSIC BIOMASS
FRACTIONATION: A WAY TO CONVERSION INTO FUELS AND CHEMICALS**

¹The University of Queensland, Brisbane, Australia

²Hokkaido University, Sapporo, Japan

15.10

**OP-I-3. Triantafyllidis K.^{1,2}, Lazaridis P.¹, Panteli A.¹
HYDROLYTIC HYDROGENATION OF CELLULOSE TO SUGAR ALCOHOLS: EFFECT OF CATALYST TYPE,
REACTION CONDITIONS & NATURE OF CELLULOSE**

¹Aristotle University of Thessaloniki, Thessaloniki, Greece

²Chemical Process and Energy Resources Institute, Thessaloniki, Greece

15.30

**OP-I-4. Basset C.¹, Constant S.¹, Robitzer M.¹, Dumas C.², Barakat A.³, Di Renzo F.¹, Quignard F.¹
LEWIS-ACID CATALYSED ORGANOSOLV LIGNIN EXTRACTION FROM WHEAT STRAW**

¹Institute Charles Gerhardt of Montpellier, Montpellier, France

²LISBP-INSA de Toulouse, Toulouse, France

³NRA, IATE 1208 Ingénierie des Agropolymères et Technologies Emergentes, Montpellier, France

15.50

**OP-I-5. Vitolo M., Hares Junior S.J.
NOTE ON THE USE OF THE ACID VALUE FOR FOLLOWING THE HYDROLYSIS OF TRIOLEIN BY
IMMOBILIZED LIPASE**

University of São Paulo, São Paulo, Brazil

16.10 – 16.30

Coffee break

SCHOOL OF YOUNG SCIENTISTS

PEGASO Hall

16.30 – 17.00

Section I. CATALYSIS IN DENDROCHEMISTRY FOR VALUABLES PRODUCTION

***Chairperson – Professor Vadim Yakovlev, Boreskov Institute of Catalysis SB RAS,
Novosibirsk, Russia***

16.30

OP-I-YS-1. Chatterjee A.¹, Lin H.¹, Hu X.¹, Lam F.L.^{1,2}

**MECHANOCHEMICALLY-FABRICATED FUNCTIONAL MATERIALS FOR XYLOSE-TO-FURFURAL
TRANSFORMATION**

¹*Hong Kong University of Science and Technology, Hong Kong, Hong Kong*

²*Technion Israel Institute of Technology, Haifa, Israel*

16.40

OP-I-YS-2. Scelfo S., Pirone R., Russo N.

CATALYTIC WET AIR OXIDATION OF D-GLUCOS

Politecnico di Torino, Torino, Italy

16.50

OP-I-YS-3. Ansaloni S., Pirone R., Russo N.

CATALYTIC WET AIR OXIDATION OF LIGNIN OVER PEROVSKITE-TYPE OXIDES AS CATALYSTS

Politecnico di Torino, Turin, Italy

17.00

PEGASO Hall

Sergio Guzzo

SPER S.p.a. Presentation

SPER BIOMASS PLANT

19.00 Welcome Reception

September 7, Monday, 14.30 – 16.10

MIZAR Hall

ORAL PRESENTATIONS

Section II. BIOMASS DERIVATIVES IN PETROCHEMISTRY

Chairperson – Professor Abidin Sumaiya Zainal, University Malaysia Pahang, Malaysia

14.30

OP-II-1. Kirillov V.A.¹, Shigarov A.B.¹, Landgraf I.², Urusov A.², Polianskaia T.²

BIOFUELS AS A PERSPECTIVE HYDROGEN SOURCE FOR FUEL CELL POWER UNITS

¹*Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia*

²*Krylov State Research Centre, St. Petersburg, Russia*

14.50

OP-II-2. Lasso F.J.¹, Compagnoni M.¹, Rossetti I.¹, Ramis G.²

FLAME PYROLYSIS PREPARED CATALYSTS FOR THE STEAM REFORMING OF ETHANOL

¹*University of Milan, Milan, Italy*

²*Università degli Studi di Genova, Dip. di Ingegneria Civile, Chimica e Ambientale, Genoa, Italy*

15.10

OP-II-3. Manabe R., Sasaki Y., Okada S., Oshima K., Ogo S., Sekine Y.

EFFECT OF ELECTRIC FIELD ON CATALYTIC METHANE STEAM REFORMING AT LOW TEMPERATURE OVER Pd / CeO₂

Waseda University, Tokyo, Japan

15.30

OP-II-4. Fedotov A.S.¹, Antonov D.O.¹, Tsodikov M.V.¹, Uvarov V.I.²

DRY AND STEAM REFORMING OF FERMENTATION PRODUCTS INTO SYNGAS OVER POROUS CERAMIC Ni(Al)-Co-CONTAINING CONVERTERS

¹*A.V. Topchiev Institute of Petrochemical Synthesis, RAS, Moscow, Russia*

²*The Institute of Structural Macrokinetics RAS, Moscow, Russia*

15.50

OP-II-5. Krалеva E., Goicoechea S., Ehrich H.

HYDROGEN PRODUCTION BY CATALYTIC REFORMING OF RENEWABLES FOR POWER GENERATION IN SOFC

Leibniz Institute for Catalysis, Rostock, Germany

16.10 – 16.30

Coffee break

SCHOOL OF YOUNG SCIENTISTS

MIZAR Hall

16.30 – 17.00

Section II. BIOMASS DERIVATIVES IN PETROCHEMISTRY

Chairperson – Professor Madalina Tudorache, University of Bucharest, Romania

16.30

OP-II-YS-1. Vidal Vázquez F.¹, Simell P.A.¹, Lehtonen J.¹, Koskinen-Soivi M.²

KINETIC MODELLING OF CATALYST USED IN METHANATION OF CO₂ FOR POWER-TO-GAS APPLICATIONS

¹*VTT Technical Research Centre of Finland Ltd, Espoo, Finland*

²*Aalto University School of Science and Technology, Espoo, Finland*

16.40

OP-II-YS-2. Viinikainen T.¹, Kouva S.¹, Lehtonen J.², Kanervo J.¹

TOLUENE OXIDATION KINETICS OVER ZrO₂-BASED GASIFICATION GAS CLEAN-UP CATALYSTS

¹*Aalto University, Espoo, Finland*

²*Aalto University School of Science and Technology, Espoo, Finland*

16.50

OP-II-YS-3. Coronado I.¹, Vidal Vázquez F.¹, Koskinen-Soivi M.¹, Simell P.¹, Lehtonen J.²

CARBON DIOXIDE METHANATION FOR INTENSIFIED REACTOR

¹*Aalto University, Espoo, Finland*

²*Aalto University School of Science and Technology, Espoo, Finland*

17.00

PEGASO Hall

Sergio Guzzo

SPER S.p.a. Presentation

SPER BIOMASS PLANT

19.00 Welcome Reception

September 8, Tuesday

PEGASO Hall

PLENARY LECTURES

Chairperson – Professor Simoni Plentz Meneghetti, Federal University of Alagoas, Brazil

9.00

PL-3 Marie-Francoise Reyniers, **Professor Guy Marin**
CATALYSIS FOR RENEWABLE RESOURCES: BIOALCOHOL CONVERSION
Ghent University, Belgium

KEYNOTE LECTURES

10.00

KL-3 **Professor Emiel Hensen**
NOVEL CATALYTIC PROCESS FOR LIGNIN UPGRADING INTO AROMATICS
Eindhoven University of Technology, The Netherlands

10.30

KL-4 **Professor Sergei Varfolomeev**
"PHYSICAL" CATALYSIS OF CHEMICAL REACTIONS UNDER THE INFLUENCE OF EXTERNAL ELECTRIC FIELDS. HDTV and SHF IN CATALYSIS
N.M. Emanuel Institute of Biochemical Physics RAS, Moscow, Russia
M.V. Lomonosov Moscow State University, Moscow, Russia

11.00 – 11.30

Coffee

September 8, Tuesday, 11.30 – 16.10

PEGASO Hall

ORAL PRESENTATIONS

SECTION I. Catalysis in dendrochemistry for valuables production

Chairperson – Dr. Francoise Quignard, The Institute Charles Gerhardt of Montpellier, France

11.30

OP-I-6. **Hernández S.^{1,2}, Bensaid S.¹, Ottone C.^{1,2}, Sitaramanjaneya Mouli T.¹, Armandi M.¹, Bonelli B.¹, Russo N.¹, Garrone E.¹, Saracco G.¹**

COMPARISON OF CATALYTIC AND PHOTOCATALYTIC WATER OXIDATION MATERIALS THROUGH THE REACTION KINETICS IN A THREE-PHASES BUBBLING REACTOR

¹*Politecnico di Torino, Torino, Italy*

²*Center for Space Human Robotics, Istituto Italiano di Tecnologia, Turin, Italy*

11.50

OP-I-7. **Kuznetsov B.N.**^{1,2}, Chesnokov N.^{1,2}, Yatsenkova O.¹, Kuznetsova S.^{1,2}, Skripnikov A.¹

CATALYTIC DEPOLYMERIZATION OF HEMICELLULOSES AS AN IMPORTANT STEP OF BIRCH-WOOD BIOMASS COMPLEX PROCESSING INTO VALUABLE CHEMICALS

¹*Institute of Chemistry and Chemical Technology SB RAS, Krasnoyarsk, Russia*

²*Siberian Federal University, Krasnoyarsk, Russia*

12.10

OP-I-8. **Taran O.P.**, Timofeeva M.N., Gromov N.V., Ayusheev A.B., Parmon V.N.

POLYOXOMETALATE-SUPPORTED RU NANOPARTICLES FOR SELECTIVE CONVERSIONS OF XYLAN INTO PENTITOLS

Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia

12.30-14.30

Lunch

Chairperson – Professor Parasuraman Selvam, Indian Institute of Technology-Madras, India

14.30

OP-I-9. **Heeres H.J.**¹, Kumalaputri A.J.^{1,2}, Bottari G.³, Barta K.³

BIOBASED BUILDING BLOCKS FROM 5 HYDROXYMETHYLFURFURAL

¹*University of Groningen, Department of Chemical Engineering, Groningen, The Netherlands*

²*Parahyangan Catholic University, Department of Chemical Engineering, Bandung, West Java, Indonesia*

³*Stratingh Institute for Chemistry, University of Groningen, Groningen, The Netherlands*

14.50

OP-I-10. **Khromova S.**^{1,2}, Geng Zh.², Smirnov A.¹, Ermakov D.¹, Bulavchenko O.^{1,2}, Kaichev V.V.^{1,2}, Yakovlev V.^{1,2}

Ni-MODIFIED Mo CARBIDE CATALYSTS FOR HYDRODEOXYGENATION OF BIOMASS-DERIVED MODEL COMPOUNDS

¹*Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia*

²*Novosibirsk State University, Novosibirsk, Russia*

15.10

OP-I-11. **Zhang Y.**¹, Grazia L.¹, Lolli A.¹, Bonincontro D.¹, Thieuleux C.², Quadrelli A.E.², Albonetti S.¹, Cavani F.¹

SELECTIVE CONVERSION OF FURFURAL TO METHYLFURAN OVER Mg/Fe/O MIXED OXIDE USING METHANOL AS H TRANSFER REACTANT

¹*University of Bologna, Bologna, Italy*

²*University of Lyon, Lyon, France*

15.30

OP-I-12. **Melero J.**, Hernandez B., Iglesias J., Paniagua M., Morales G., Dos Santos J.

ONE-STEP PRODUCTION OF VALEROLACTONE FROM FURFURAL IN THE PRESENCE OF ZrO₂ GRAFTED SBA-15

Universidad Rey Juan Carlos, Madrid, Spain

15.50

OP-I-13. **Dossumov K.**¹, Yergazyieva G.Y.², Asanov N.², Myltykbayeva L.K.¹, **Telbayeva M.M.**²

CONVERSION OF BIOGAS TO SYNTHESIS GAS OVER NICKELCONTAINING CATALYSTS

¹*Al-Farabi Kazakh National University, Centre of Physical and Chemical Methods of Investigation, Almaty, Kazakhstan*

²*Institute of Combustion Problems, Almaty, Kazakhstan*

16.10 Coffee break

16.30 Guide Excursion around Catania

September 8, Tuesday, 11.30 – 16.10
MIZAR Hall

ORAL PRESENTATIONS

Section III. CATALYTIC PROCESSES FOR BIOFUELS PRODUCTION

Chairperson – Professor Zsigmond Ágnes, University of Szeged, Hungary

11.30

OP-III-1. Yakovlev V.A.^{1,2}, Smirnov A.¹, Rehtina M.^{1,2}, Khromova S.^{1,2}, Bykova M.^{1,2}, Venderbosch R.³, Parmon V.N.¹

STABILITY PROBLEMS OF Ni-BASED CATALYSTS IN PYROLYSIS OIL HYDROTREATMENT

¹*Boskov Institute of Catalysis SB RAS, Novosibirsk, Russia*

²*Novosibirsk State University, Novosibirsk, Russia*

³*Biomass Technology Group B.V., Enschede, The Netherlands*

11.50

OP-III-2. Mihailof C.¹, Iliopoulou E.F.¹, Lappas A.A.¹, Toraman H.E.², Thybaut J.W.², Van Geem K.M.², Marin G.²

CHARACTERIZATION STUDIES OF WASTE BIO-DERIVED FEEDSTOCK

¹*Chemical Process and Energy Resources Institute/Centre of Research and Technology Hellas, Thessaloniki, Greece*

²*Ghent University, Ghent, Belgium*

12.10

OP-III-3. Bayahia H., Kozhevnikova E., Kozhevnikov I.

KETONISATION OF CARBOXYLIC ACIDS OVER METAL OXIDE AND ZEOLITE CATALYSTS IN THE GAS PHASE

University of Liverpool, Department of Chemistry, Liverpool, United Kingdom

12.30-14.30

Lunch

Chairperson – Professor Ivan Kozhevnikov, University of Liverpool, United Kingdom

14.30

- OP-III-4. Hakonen K.,** González Escobedo J., Meriö-Talvio H., Karinen R., Lehtonen J.
ETHANOL ORGANOSOLV LIGNIN DEPOLYMERISATION WITH HYDROGEN OVER NOBLE METAL CATALYSTS
Aalto University School of Science and Technology, Espoo, Finland

14.50

- OP-III-5. Isa Y.M.**
EFFECTS OF PROMOTION TECHNIQUES ON ZSM-5 ACTIVITY IN CONVERSION OF ALCOHOLS TO FUEL RANGE HYDROCARBONS
Durban University of Technology, Durban, South Africa

15.10

- OP-III-6. Palella A.¹, Italiano C.¹, Fabiano C.¹, Pino L.¹, Vita A.¹, Arena F.², Spadaro L.¹**
BIOREFINERY PROCESSES FOR GREEN FUELS AND HYDROGEN GENERATION: CATALYTIC STUDY IN THE HDT REACTIONS OF O-XYLENE MODEL COMPOUND
¹*Institute of Advanced Technology for Energy “Nicola Giordano” (CNR-ITAE), Messina, Italy*
²*University of Messina, Messina, Italy*

15.30

- OP-III-7. Shemfe B.,** Gu S., Fidalgo B.
TECHNO-ECONOMIC COMPARISON of Pt/Al₂O₃, Ni-Mo and Co-Mo/Al₂O₃ CATALYSTS ON BIO-OIL HYDRODEOXYGENATION
Cranfield University, Cranfield, United Kingdom

15.50

- OP-III-8. Kukushkin R.¹,** Kaichev V.V.^{1,2}, Yakovlev V.^{1,2}
HYDRODEOXYGENATION OF PLANT LIPIDS FOR BIOFUELS PRODUCTION USING Ni-BASED CATALYSTS MODIFIED BY Mo
¹*Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia*
²*Novosibirsk State University, Novosibirsk, Russia*

16.10 Coffee break

16.30 Guide Excursion around Catania

September 9, Wednesday

PEGASO Hall

PLENARY LECTURES

Chairperson – Professor Boris Kuznetsov, Institute of Chemistry and Chemical Technology SB RAS, Krasnoyarsk, Russia

9.00

PL-4 Professor Donato A.G. Aranda

BIODIESEL AND HYDROCARBONS OBTAINED FROM WET ALGAL BIOMASS

School of Chemistry, Federal University of Rio de Janeiro, Rio de Janeiro, Brazil

10.00

PL-5 Professor Can Li

FUNDAMENTAL UNDERSTANDING OF ARTIFICIAL PHOTOSYNTHESIS FOR SOLAR FUEL PRODUCTION

State Key Laboratory of Catalysis, Dalian Institute of Chemical Physics, Chinese Academy of Sciences, China

11.00 – 11.30

Coffee break

KEYNOTE LECTURES

Chairperson – Professor Małgorzata Witko, Jerzy Haber Institute of Catalysis and Surface Chemistry, Polish Academy of Sciences, Kraków, Poland

11.30

KL-5 Professor Claude Mirodatos

FOSSIL AND BIO CARBON FATE IN FCC CO-REFINING

Institute of Researchers on Catalysis and Environment in Lyon, France

12.00

KL-6 Professor Vladislav Sadykov

NANOCOMPOSITE CATALYSTS OF BIOFUELS TRANSFORMATION INTO SYNGAS: DESIGN, REACTION MECHANISM AND PERFORMANCE

Boriskov Institute of Catalysis SB RAS, Novosibirsk, Russia

12.30-14.30

Lunch

September 9, Wednesday, 14.30 – 15.30
PEGASO Hall

ORAL PRESENTATIONS

SECTION I. Catalysis in dendrochemistry for valuables production

Chairperson – Professor Konstantinos Triantafyllidis, Aristotle University of Thessaloniki, Greece

14.30

OP-I-14. Wang Y.^{1,2}, Sun J.², Baylon R.²

RATIONAL DESIGN OF HIGHLY STABLE AND SELECTIVE $Zn_xZr_yO_z$ CATALYST FOR DIRECT CONVERSION OF BIOMASS-DERIVED OXYGENATES TO OLEFINS

¹*Pacific Northwest National Laboratory, Richland Washington, USA*

²*Washington State University, Pullman, USA*

14.50

OP-I-15. Fernandez C., Bensaid S., Pirone R.

AQUEOUS PHASE REFORMING OF C_5 and C_6 SUGARS AND SUGAR ALCOHOLS

Politecnico di Torino, Torino, Italy

15.10

OP-I-16. Krivtcova N.I.¹, Gaga S.², Desyatnichenko A.²

RECYCLING ORGANIC WASTE INTO VALUABLE FUEL

¹*National Research Tomsk Polytechnic University, Tomsk, Russia*

²*SPE GEOCE, Company Limited, Tomsk, Russia*

15.30 Poster Session

16.10 Coffee break

19.00

Banquet

September 9, Wednesday, 14.30 – 15.10
MIZAR Hall

SCHOOL OF YOUNG SCIENTISTS

Section III. CATALYTIC PROCESSES FOR BIOFUELS PRODUCTION

Chairperson – Dr. Bolaji Shemfe, Cranfield University, United Kingdom

14.30

OP-III-YS-1. Veses A., López J., Callén M., García T.

PROMOTING THE ENHANCEMENT OF BIO-OIL DEOXYGENATION BY METAL CATION IMPREGNATION OF HIERARCHICAL ZSM-5 ZEOLITES

Instituto De Carboquimica (CSIC), Zaragoza, Spain

14.40

OP-III-YS-2. Ezinkwo G.¹, Tretiyakov V.F.^{1,2}, Talyshinsky R.M.², Ilolov A.²

THE USE OF LOWER ALCOHOL MIXTURES FOR THE COMBINED CATALYTIC SYNTHESIS OF MONOMERS FOR THE PRODUCTION OF ELASTOMERS AND SYNTHETIC RUBBER

¹*M.V. Lomonosov Moscow State Academy of Fine Chemical Technology, Moscow, Russia*

²*A.V. Topchiev Institute of Petrochemical Synthesis, Moscow, Russia*

14.50

OP-III-YS-3. Mironenko O.¹, Bykova M.^{1,2}, Khromova S.^{1,2}, Yeletsky P.M.^{1,2}, Yakovlev V.^{1,2}

PYROLYSIS OIL PROCESSING IN THE PRESENCE OF NICKEL-BASED NANODISPERSED CATALYSTS

¹*Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia*

²*Novosibirsk State University, Novosibirsk, Russia*

15.00

OP-III-YS-4. Jaatinen S.K., Karinen R., Lehtonen J.

LIQUID PHASE FURFURAL HYDRODEOXYGENATION TO FUEL COMPONENT 2-METHYLFURAN OVER SUPPORTED METAL CATALYSTS

Aalto University School of Science and Technology, Espoo, Finland

15.30 Poster Session

16.10 Coffee break

19.00 Banquet

September 10, Thursday

PEGASO Hall

PLENARY LECTURES

Chairperson – Professor Erik Heeres, University of Groningen, The Netherlands

9.00

PL-6 Professor Dmitry Murzin

CATALYSIS IN SYNTHESIS OF BIOMASS DERIVED PRODUCTS WITH PHYSIOLOGICAL PROPERTIES

Åbo Akademi University, Turku, Finland

September 10, Thursday, 10.00 – 12.40

PEGASO Hall

ORAL PRESENTATIONS

Section II. BIOMASS DERIVATIVES IN PETROCHEMISTRY

10.00

OP-II-6. Zainal Abidin S.^{1,2}, Cheng C.², Vo D.², Harun N.², Mohd Yunus N.², Mohd Arif N.²

EFFECT OF DIFFERENT OXIDES SUPPORT ON NI-BASED CATALYSTS TO THE SYNGAS PRODUCTION FOR CARBON DIOXIDE (CO₂) DRY REFORMING OF GLYCEROL

¹*Center of Excellent For Advanced Research in Fluid Flow (CARIFF), University Malaysia Pahang, Pahang, Malaysia*

²*Faculty of Chemical & Natural Resources Engineering, University Malaysia Pahang, Pahang, Malaysia*

10.20

OP-II-7. Schiavo B.¹, Immordino D.¹, Ienna A.¹, Sau S.², Giaconia A.², Scialdone O.¹, Galia A.¹

HYDROTHERMAL LIQUEFACTION OF MICROALGAE IN THE PRESENCE OF HOMOGENEOUS AND HETEROGENEOUS CATALYSTS

¹*University of Palermo, Palermo, Italy*

²*ENEA, Casaccia Research Center, Rome, Italy*

10.40 Coffee break

ORAL PRESENTATIONS

Section IV. BIO-PHOTO-/ELECTRO-CATALYTIC CONVERSION OF RENEWABLES

Chairperson – Professor Shuhei Ogo, Waseda University, Tokyo, Japan

11.00

OP-IV-1. Guo X.N., Guo X.Y.

PHOTOCATALYTIC FISCHER-TROPSCH SYNTHESIS ON GRAPHENE-SUPPORTED RUTHENIUM NANOCHAINS

Institute of Coal Chemistry, Chinese Academy of Sciences, Taiyuan, China

11.20

OP-IV-2. Kozlova E.^{1,2,3}, Markovskaya D.V.^{1,2,3}, Parmon V.N.^{1,2}

THE SYNTHESIS OF CATALYSTS BASED ON $\text{Cd}_{0.3}\text{Zn}_{0.7}\text{S}$ DOPED BY TRANSITION METALS FOR PHOTOCATALYTIC HYDROGEN PRODUCTION UNDER VISIBLE LIGHT

¹*Boriskov Institute of Catalysis SB RAS, Novosibirsk, Russia*

²*Novosibirsk State University, Novosibirsk, Russia*

³*Novosibirsk State University, Research and Education Center for Energy-Efficient Catalysis, Novosibirsk, Russia*

11.40

OP-IV-3. Tudorache M., Parvulescu V., Andreea G.

GUIDELINE OF ALPHA-PINENE TO VALUE-ADDED PRODUCTS USING BIOCATALYTIC TOOLS

University of Bucharest, Bucharest, Romania

12.00

OP-IV-4. Saeed M., Shahzad M.A., Adeel S.

OXIDATIVE DEGRADATION OF METHYL ORANGE CATALYZED BY LAB PREPARED NICKEL HYDROXIDE IN AQUEOUS MEDIUM

Government College University Faisalabad, Faisalabad, Pakistan

12.20 Presentation

12.40 Closing

13.00 Lunch

14.00 Excursion to Taormino

September 10, Thursday, 10.00 – 12.40
MIZAR Hall

ORAL PRESENTATIONS
Section III. CATALYTIC PROCESSES FOR BIOFUELS PRODUCTION

Chairperson – Professor Juan Antonio Melero, Universidad Rey Juan Carlos, Madrid, Spain

10.00

- OP-III-9.** Haase S., Lange R.
ENHANCED MODELING OF REACTORS WITH MINICHANNEL PACKINGS OPERATED IN GAS-LIQUID TAYLOR FLOW MODE
Technische Universität Dresden, Dresden, Germany

10.20

- OP-III-10.** Vita A.¹, Italiano C.¹, Palella A.¹, Fabiano C.¹, Pino L.¹, Ashraf M.², Specchia S.², Spadaro L.¹
COUPLING REFORMING PROCESSES WITH FISCHER-TROPSCH SYNTHESIS TO PRODUCE LIQUID HYDROCARBONS FROM BIOGAS
¹*Institute of Advanced Technology for Energy “Nicola Giordano” (CNR-ITAE), Messina, Italy*
²*Politecnico di Torino, Torino, Italy*

10.40

Coffee break

Chairperson – Professor Ruediger Lange, Technische Universität Dresden, Germany

11.00

- OP-III-11.** Deliy I.^{1,2,3}, Shamanaev I.^{1,2,3}, Gerasimov E.^{1,2,3}, Pakharukova V.^{1,3}, Bukhtiyarova G.^{1,3}
METHYL PALMITATE AND 2-ETHYLPHENOL HYDRODEOXYGENATION OVER Ni₂P/SiO₂ CATALYSTS
¹*Borekov Institute of Catalysis SB RAS, Novosibirsk, Russia*
²*Novosibirsk State University, Novosibirsk, Russia*
³*Research and Educational Center for Energy Efficient Catalysis in Novosibirsk State University, Novosibirsk, Russia*

11.20

- OP-III-12.** Cannilla C., Bonura G., Feminò G., Drago Ferrante G., Frusteri F.
PRODUCTION OF CLEAN BIOFUELS BY ESTERIFICATION OF FREE FATTY ACIDS USING A MEMBRANE REACTOR FOR THE CONTINUOUS WATER REMOVAL
Institute of Advanced Technology for Energy “Nicola Giordano” (CNR-ITAE), Messina, Italy

11.40

- OP-III-13.** Da Rocha P., Tavares M., Bortoluzzi J., Plentz Meneghetti S., **Meneghetti M.**
BIODIESEL PRODUCTION FROM MIXTURE AND INTERESTERIFICATED OILS: A COMPARISON OF THE KINETICS OF THE TRANSESTERIFICATION REACTION
Universidade Federal de Alagoas, Maceió-AL, Brazil

12.00

- OP-III-14.** Mihailof C.¹, Papapetrou M.¹, Iliopoulou E.F.¹, **Lappas A.A.**¹, Drosou V.², Hilioti Z.²
CASTOR OIL UPGRADING VIA THE CATALYTIC CRACKING PROCESS
¹*Chemical Process and Energy Resources Institute / Centre of Research and Technology Hellas, Thessaloniki, Greece*
²*Institute of Applied Biosciences (INAB) Center for Research and Technology Hellas (CERTH), Thessaloniki, Greece*

12.20

OP-III-15. Zsigmond Á., Gyémánt M., Czeglédi A.

UTILIZATION OF BIODIESEL PRODUCTION BY-PRODUCT: LIQUID PHASE TRANSFORMATION OF GLYCEROL TO ACROLEIN

University of Szeged, Szeged, Hungary

12.40 Closing

13.00 Lunch

14.00 Excursion to Taormino

POSTER PRESENTATIONS

- PP-1. Allaedini G.¹, Tasirin S.¹, Aminayi P.²
PRODUCTION OF MULTIWALL CARBON NANO TUBES FROM TRI-METALLIC Ni-Ce-Fe CATALYST BY METHANE DECOMPOSITION IN A CHEMICAL VAPOR DEPOSITION
¹*Universiti Kebangsaan Malaysia, Selangor, Malaysia*
²*Western Michigan University, Kalamazoo, Michigan, USA*
- PP-2. Antonov D.O.¹, Fedotov A.S.², Tsodikov M.V.²
SYNTHESIS GAS AND ULTRA-PURE HYDROGEN CO-PRODUCTION BY DRY AND STEAM REFORMING OF FERMENTATION PRODUCTS USING HYBRID MEMBRANE-CATALYTIC REACTOR
¹*A.V. Topchiev Institute of Petrochemical Synthesis RAS, Moscow, Russia*
²*Institute of Structural Macrokinetics and Materials Science RAS, Chernogolovka, Moscow Region, Russia*
- PP-3. Barelko V.¹, Safonov O.², Bykova N.¹, Bykov L.A.¹
THE EARTH'S CRUST AS A CATALYTIC GENERATOR OF HYDROGEN EMISSION IN THE ATMOSPHERE AND POSSIBLE ROLE OF THIS PROCESS IN THE PHENOMENA OF OZONE LAYER DEGRADATION (EXPERIMENTAL MODELING OF HETEROGENEOUS-CATALYTIC MECHANISM OF FLUIDS TRANSFORMATION IN THE EARTH'S CRUST WITH AN EXAMPLE OF STEAM REFORMING OF METHANE WITH THE FORMATION OF HYDROGEN ON SERPENTINITE, GABBRO AND ASBESTOS)
¹*Institute of Problems of Chemical Physics RAS, Chernogolovka, Moscow region, Russia*
²*Institute of Experimental Biology RAS, Chernogolovka, Moscow region, Russia*
- PP-4. Bellardita M., Elisa G., Marci G., Palmisano L.
PHOTOCATALYTIC GLUCOSE CONVERSION TO PRODUCE HYDROGEN IN THE PRESENCE OF TiO₂ BASED MATERIALS
University of Palermo, Palermo, Italy
- PP-5. Chernykh I.^{1,2}, Kulikov I.^{1,2}, Glinskiy B.^{1,2}
SIBERIAN SUPERCOMPUTER CENTRE AS A SERVICE FOR CHEMICAL RESEARCHES
¹*Institute of Computational Mathematics and Mathematical Geophysics SB RAS, Novosibirsk, Russia*
²*Novosibirsk State University, Novosibirsk, Russia*
- PP-6. De Paz Carmona H.¹, Brito Alayón A.¹, Macías Hernández J.²
CATALYTIC CO-HYDROPROCESSING OF WASTE VEGETABLE OILS IN THE REFINERY OF TENERIFE
¹*Universidad de La Laguna, San Cristóbal de La Laguna, Spain*
²*CEPSA Compañía de Petróleos S.A.U. Refinery Tenerife, La Laguna, Spain*
- PP-7. Dossumova B.T., Yemelyanova V., Shakieva T., Aibassov E., Jatkambayeva U., Baizhomartov B., Shakiev E.
INFLUENCE OF THE MAGNETIC FIELD ON CATALYTIC PROCESS OF ANAEROBIC DIGESTION OF BIOMASS
Scientific Research Institute of New Chemical Technologies and Materials, Almaty, Kazakhstan
- PP-8. Dossumov K.¹, Yergazyieva G.Y.², Churina D.¹, Myltykbayeva L.K.¹, Telbayeva M.M.², Tayrabekova S.¹
THE ZEOLITES FOR CONVERSION OF BIO-ETHANOL
¹*Al-Farabi Kazakh National University, Centre of Physical and Chemical Methods of Investigation, Almaty, Kazakhstan*
²*Institute of Combustion Problems, Almaty, Kazakhstan*
- PP-9. Fernández-Rodríguez J., Erdocia X., Sanchez Agra C., Labidi J.
LIGNIN VALORIZATION FROM KRAFT BLACK LIQUOR BY ITS DEPOLYMERIZATION
University of the Basque Country, San Sebastian, Spain
- PP-10. Guo X.Y., Guo X.N.
ENHANCED CATALYTIC PERFORMANCE OF Pd/SiC FOR HYDROGENATION OF FURAN DERIVATIVES AT AMBIENT TEMPERATURE UNDER VISIBLE LIGHT IRRADIATION
Institute of Coal Chemistry, Chinese Academy of Sciences, Taiyuan, China
- PP-11. Interrante L.¹, Schiavo B.¹, Scialdone O.¹, Pirone R.², Bensaid S.², Galia A.¹
INTERESTERIFICATION OF VEGETABLE OILS WITH METHYL ACETATE IN THE PRESENCE OF HETEROGENEOUS CATALYSTS
¹*University of Palermo, Palermo, Italy*
²*University of Torino, Torino, Italy*

- PP-12. **Kazakov D.**, Vol'khin V.
THE EFFECT OF WATER-IMMISCIBLE LIQUID ORGANIC PHASES ON THE RATE OF BIOCATALYTIC METHANE OXIDATION
Perm National Research Polytechnic University, Perm, Russia
- PP-13. **Mammadova T.A.**, Teyubov K.S., Hasanova A.R., Aliyeva A.E., Latifova T.S., Abbasov V.M.
NATURAL HALLOYSITE NANOTUBES AS COCATALYSTS IN THE HYDROTREATING PROCESS OF MIXTURE OF STRAIGHT-RUN DIESEL FRACTION WITH COTTONSEED OIL
Institute of Petrochemical Processes NAS of Azerbaijan, Baku, Azerbaijan
- PP-14. **Pai Z.P.**, Selivanova N., Berdnikova P.
CATALYTIC PROCESSES OF PRODUCTION OF EPOXIDES AND CARBOXYLIC ACIDS FROM RENEWED RAW MATERIALS
Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia
- PP-15. Yemelyanova V., **Shakieva T.**, Dossumova B.T., Aibassov E., Jatkambayeva U., Baizhomartov B., Shakiev E.
THE CATALYSIS OF NANOSCALE MAGNETIC COMPOSITES ON THE BASIS OF HUMIC ACIDS OF ANAEROBIC DIGESTION OF BIOMASS
Scientific Research Institute of New Chemical Technologies and Materials, Almaty, Kazakhstan
- PP-16. Stefanidis S.^{1,2}, Kalogiannis K.¹, Iliopoulou E.F.¹, **Triantafyllidis K.**^{1,3}, Pilavachi P.A.², Lappas A.A.¹
CATALYTIC CONVERSION OF SYRINGOL, CATECHOL AND 4-METHYLCATECHOL OVER ZSM-5 ZEOLITE
¹*Chemical Process and Energy Resources Institute, Centre for Research and Technology-Hellas, Thessaloniki, Greece*
²*University of Western Macedonia, Kozani, Greece*
³*Aristotle University of Thessaloniki, Thessaloniki, Greece*
- PP-17. **Yaakob Z.**, Hari T., Tasirin S.
PRODUCTION OF GREEN DIESEL BY HYDROTREATMENT OF JATROPHA FATTY ACID METHYL ESTERS OVER γ -Al₂O₃ AND SiO₂ SUPPORTED NiCo BIMETALLIC CATALYSTS
University Kebangsaan Malaysia, Selangor, Malaysia
- PP-18. **Tong X.**, Guo X.N., Guo X.G.
CARBON NET FROM NANOSPHERES AS EFFICIENT METAL-FREE ELECTROCATALYSTS FOR OXYGEN REDUCTION REACTION
Institute of Coal Chemistry, Chinese Academy of Sciences, Taiyuan, China
- PP-19. **Zerva K.**, Templis C., Papayannakos N.
PHENOL HYDRODEOXYGENATION OVER A Pt/ γ -Al₂O₃ CATALYST
National Technical University of Athens, Athens, Greece
- PP-20. **Zhizhina E.G.**, Gogin L.L., Pai Z.P.
THE CATALYST OF WOOD DELIGNIFICATION: A NEW ROUTE FOR THE SYNTHESIS OF ANTHRAQUINONE
Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia
- PP-21. Gulyaeva Yu.A.¹, Simonov M.M.¹, Panchenko V.N.¹, Demidova Yu.S.¹, **Simakova I.L.**¹, Murzin D.Yu.²
BIFUNCTIONAL Pd(Pt)/ZrO₂ CATALYST FOR EFFECTIVE ONE-POT PROCESS OF ALKANES PRODUCTION FROM CARBOXYLIC ACIDS
¹*Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia*
²*Process Chemistry Centre, Åbo Akademi University, Turku/Åbo, Finland*
- PP-22. **Kuzmina R.**, Michael A., Romadenkina S.
HIGH-TEMPERATURE PROCESSING OF SEWAGE SLUDGE
Chernyshevsky Saratov State University, Saratov, Russia
- PP-23. Kuzmina R., **Pilipenko A.**
EFFECT OF TEMPERATURE ON ETHANOL CONVERSION OVER SURFACE OF Zr-MODIFIED ZEOLITE SYSTEM OF ZSM-5 TYPE
Chernyshevsky Saratov State University, Saratov, Russia
- PP-24. **Massalimova B.K.**
OXIDATIVE CONVERSION OF PROPANE-BUTANE MIXTURE TO HYDROGEN OVER POLYCOMPONENT OXIDE CATALYSTS
Altynsari Arkalyk State Pedagogical Institute, Arkalyk, Kazakhstan

- PP-25. **Rossa V.**¹, Pessanha Y.S.¹, Aranda D.A.¹, Pergher S.B.²
SOLKETAL PRODUCTION BY HETEROGENEOUS CATALYSIS
¹*Greentec-Federal University of Rio de Janeiro, Rio de Janeiro, Brazil*
²*Federal University of Rio Grande do Norte, Natal, Brazil*
- PP-26. **Simakova I.**¹, Demidova Y.², Murzin D.²
STRUCTURE SENSITIVITY IN HYDROGENATION OF GALACTOSE AND ARABINOSE OVER Ru/C CATALYSTS
¹*Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia*
²*Åbo Akademi University, Turku, Finland*
- PP-27. **Simakova I.**^{1,2}, Tarabanko E.³, Chernyak M.³, Morozov A.³
BUILDING-UP CATALYTIC APPROACHES FOR PRODUCTION OF BIOFUEL COMPONENTS FROM BIO-DERIVED OXYGENATES
¹*Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia*
²*Novosibirsk State University, Novosibirsk, Russia*
³*Institute of Chemistry and Chemical Technology SB RAS, Krasnoyarsk, Russia*
- PP-28. Staroverov D., **Varlamova E.**, Chernyshev D., Suslov A., Suchkov Y., Shvets V.
DEHYDRATION OF METHYL LACTATE TO ACRYLIC ACID USING CALCIUM-PHOSPHATE-SILICA CATALYSTS
D. Mendeleev University of Chemical Technology of Russia, Moscow, Russia
- PP-29. **Szabó E.**¹, Tompos A.¹, Pászti Z.¹, Radnóczy G.², Sajó I.¹
THE ROLE OF MODIFIERS IN MULTI-COMPONENT Au/Al₂O₃ CATALYSTS DESIGNED FOR PREFERENTIAL CO OXIDATION
¹*Chemical Research Center, Hungarian Academy of Sciences, Budapest, Hungary*
²*Institute for Technical Physics and Materials Science, Hungarian Academy of Sciences, Budapest, Hungary*
- PP-30. Vikla A.¹, **Simakova I.**², Demidova Y.², Calvo L.³, Gilarranz M.³, Lefferts L.¹, Murzin D.⁴
AQUEOUS PHASE REFORMING OF BIOMASS COMPOUNDS OVER Pt and Ru CONTAINING CATALYSTS
¹*University of Twente, Twente, The Netherlands*
²*Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia*
³*Universidad Autónoma de Madrid, Madrid, Spain*
⁴*Åbo Akademi University, Turku, Finland*