

Boreskov Institute of Catalysis, Novosibirsk, Russia
N.D. Zelinsky Institute of Organic Chemistry RAS, Moscow, Russia
Lomonosov Moscow State University, Moscow, Russia
Russian Mendeleev Chemical Society, Novosibirsk Department
Siberian Branch of the Russian Academy of Sciences



XI International Conference

MECHANISMS of CATALYTIC REACTIONS

Sochi, Krasnodar Region, Russia
October 7-11, 2019

SCIENTIFIC PROGRAM

Boreskov Institute of Catalysis, Novosibirsk, Russia
N.D. Zelinsky Institute of Organic Chemistry RAS, Moscow, Russia
Lomonosov Moscow State University, Moscow, Russia
Russian Mendeleev Chemical Society, Novosibirsk Department
Siberian Branch of the Russian Academy of Sciences

XI International Conference
“Mechanisms of Catalytic Reactions”

Sochi, Krasnodar region, Russia
October 7 – 11, 2019

SCIENTIFIC PROGRAM

Novosibirsk – 2019

CONFERENCE ORGANIZERS



Boreskov Institute of Catalysis, Novosibirsk, Russia



N.D. Zelinsky Institute of Organic Chemistry RAS,
Moscow, Russia



Lomonosov Moscow State University, Moscow, Russia



Russian Mendeleev Chemical Society,
Novosibirsk Department



Siberian Branch of the Russian Academy of Sciences

UNDER THE AUSPICES OF



European Federation of Catalysis Societies



National Catalytic Society of Russia

FINANCIAL SUPPORT



Russian Foundation for Basic Research

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**KINETICS AND
CATALYSIS**

Journal "Kinetics and Catalysis"

TOPICS in
CATALYSIS

Journal "Topics in Catalysis"

SCIENTIFIC COMMITTEE

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Aleksander Stakheev	Zelinsky Institute of Organic Chemistry, RAS, Moscow, Russia
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Malgorzata Witko	Institute of Catalysis and Surface Chemistry, Krakow, Poland

ORGANIZING COMMITTEE

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Novosibirsk, Russia

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Marina Suvorova Borekov Institute of Catalysis,
Novosibirsk, Russia

The XI Conference “Mechanisms of Catalytic Reactions” is the event in the series of International MCR-Conferences started in 1974 in Moscow. Traditionally, the Conferences on the Mechanisms of Catalytic Reactions focus on advances in understanding the mechanisms of chemical reactions occurring in the presence of catalysts, ranging from homogeneous molecular catalysts (inorganic, organic, metal complex based) to heterogeneous catalysts.

The scientific program of MCR XI includes 6 plenary lectures (40 min) and 5 keynote lectures (30 min); 57 oral presentations (20 min) are scheduled in three parallel sessions. The Conference Program also includes 105 poster presentations.

The Conference is accompanied by the School-Conference for young scientists «CATALYSIS FOR ENERGY, FUELS, RENEWABLES» containing 15 oral presentation (duration 15 min).

Conference Exhibition of compact installations and devices, as well as promotional materials, will be held throughout the Conference, on October 7-11.

Presentation

The time of presentation (including time for questions) is 40 min for a plenary lecture, 30 min for a keynote lecture, 20 min for an oral presentation.

Multimedia LCD projectors will be available. Organizers recommend the authors to prepare computer presentations in *.ppt format (Microsoft Office PowerPoint).

Poster dimensions should correspond to the format: vertical, 100 cm x 100 cm format A0 (1189 x 841 mm). The authors are requested to place their posters on October 9 (Wednesday) from 09.00 to 19.00 at hall for coffee breaks, and remove them after 19.00, at the end of poster session.

Conference Publications

The abstracts of all accepted presentations will be published electronically with an assigned ISBN and placed at the website.

Selected Conference papers will be published in the special issues of Kinetics and Catalysis and Topics in Catalysis.

Special Issue of «Kinetics and Catalysis»

To publish the article, it is necessary to prepare an article in English and send it to the editorial office of the journal by **December 01, 2019**. In your cover letter, please indicate "**Conference "Mechanisms of Catalytic Reactions-2019"**". The estimated time of release is the second half-year of 2020. Please consult the journal guidelines at <http://pleiades.online/en/journal/kincat/guid/>

Together with the article, you also need to send a completed Copyright Transfer Agreement, which is available on the journal's website (you can fill only the part in English).

Contacts for sending articles: *Galina Polyakova*
head. the editorial board
kincat@ioc.ac.ru
Tel / Fax: +7 (499) 135-5358

Special Issue of «Topics in Catalysis»

Authors of selected invited and oral contributions will be invited to publish full papers in the special issue of the "**Topics in Catalysis**". The authors will receive personal submission links.

The submission deadline is November 01, 2019. The instructions for authors and related information are available at the journal website:

<https://www.springer.com/chemistry/catalysis/journal/11244/PSE>

Venue

The Conference will take place in three conference halls at the business center of the Golden Tulip hotel**** (**Ballroom hall, Eindhoven hall and Amersfort hall**)

Meals

Lunches will be served at the restaurant «Branche» of Golden Tulip hotel, on the 1st floor. Vouchers for 3 lunches will be included in the participant package. Morning and afternoon coffee breaks will be provided.

Registration

Registration will take place at the Golden Tulip hotel, at 1,5th floor hall, on October 7 from 12.00 till 16.00 and on October 8 from 8.00 till 13.00.

Social events

The participants are invited to the Welcome reception at 18.30 on October 7 (the restaurant «Branche» of the Golden Tulip hotel).

The Conference banquet will be held at the the «Branche» restaurant of the Golden Tulip hotel, on October 9 at 19.00 (*ticket, 4000 Rub*).

The participants and guests are offered a special sightseeing program: Sightseeing walk «Around Rosa Khutor», October 10, 2019 after closing ceremony

The post tour “The trip aroun big Sochi”, October 11, 2019

(from 09.00 till 18.00; ticket, 2800-3500 Rub)

The excursion and the tour start from the Hotel Golden Tulip.

Registration Fee

The fee covers registration for the Conference, editorial expenditures, delegate bag, auditorium rent, coffee-breaks, three lunches, Welcome Party, sightseeing excursion around Rosa Khutor.

Weather

In early October, the temperature in Sochi is usually 16-20 °C. The Organizing Committee advises the Conference participants to bring umbrellas and warm overclothes.

Scientific Sections

Section I

– Basic concepts, theory and modeling in catalysis

Section II

– Physical methods, including in situ and operando techniques, in catalysis

Section III

– Kinetics and mechanisms of catalyzed processes

Section IV

– Advanced catalyst systems addressing current challenges: energy, materials, sustainability

School-Conference for young scientists «**CATALYSIS FOR ENERGY, FUELS, RENEWABLES**»

SCIENTIFIC PROGRAM

Monday, October 7, 2019

The hotel Golden Tulip, Rosa Khutor 4
(Naberezhnaya Panorama 3, Estosadok, Russia)*

12.00-16.00 Registration: 1,5th hall for coffee, the Golden Tulip hotel

Ballroom Hall

16.00-16.20 Opening ceremony

*Chairmen: Academician Valerii I. Bukhtiyarov
Academician Valentin N. Parmon*

PLENARY LECTURES

PL-1; 16.20-17.00

Presenting author: Academician Valentin N. Parmon

Kirill Zamaraev: The life devoted to science and catalysis

Siberian Branch of the Russian Academy of Sciences

Boreskov Institute of Catalysis, Novosibirsk, Russia

PL-2; 17.00-17.40

Presenting author: Dr. Oxana A. Kholdeeva

Mechanisms of Hydrogen Peroxide Activation over Ti(IV) and Nb(V) Single Sites

Boreskov Institute of Catalysis, Novosibirsk, Russia

Novosibirsk State University, Novosibirsk, Russia

17.40 Conference Photo

18.30-20.30 Welcome Reception

(the «Branche» restaurant, 1st floor of the Golden Tulip hotel)

Tuesday, October 8

The hotel Golden Tulip, Rosa Khutor 4
(Naberezhnaya Panorama 3, Estosadok, Russia)*

Ballroom Hall

*Chairmen: Prof. Dr. Konstantin P. Bryliakov
Prof. Dr. Jun Li*

PLENARY LECTURES

PL-3; 9.00-9.40

Presenting author: Prof. Dr. Graham Hutchings

Catalysis Using Nanomaterials

*Cardiff Catalysis Institute, School of Chemistry, Cardiff University,
Cardiff, UK*

PL-4; 9.40-10.20

Presenting author: Prof. Dr. Paolo Fornasiero

Smart Catalysts and Today's Energy and Environmental Challenges

*Department of Chemical and Pharmaceutical Sciences, ICCOM-CNR and
INSTM, University of Trieste, Trieste, Italy*

KEYNOTE LECTURE

KL-1; 10.20-10.50

Presenting author: Prof. Dr. Christian Limberg

Lokare K.S.¹, Frank N.¹, Manicke N.¹, Pinkert D.¹, Braun-Cula B.¹,
Goikoetxea I.¹, Jorewitz M.², Kelly J.T.², Herwig C.¹, Leach S.¹,
Baldauf C.³, Asmis K.², Sauer J.¹, Limberg C.¹

Molecular Aluminium and Iron Siloxide Compounds as Models for Active Sites in the Pores of Zeolites

1 – Humboldt-Universität zu Berlin, Institut für Chemie, Berlin, Germany

2 – Wilhelm-Ostwald-Institut für Physikalische und Theoretische Chemie, Universität Leipzig, Leipzig, Germany

3 – Fritz-Haber-Institut der Max-Planck Gesellschaft, Berlin, Germany

10.50 *Coffee break*

Ballroom Hall

ORAL PRESENTATIONS

Section I. Basic concepts, theory and modeling in catalysis

Chairman: Prof. Dr. Konstantin M. Neyman

IOP-I-1; 11.20-11.40

Presenting author: Dr. Kirill V. Kovtunov

Kovtunov K.V., Koptyug I.V.

Robust In Situ Investigation of Heterogeneous Hydrogenation Mechanisms with Parahydrogen

International Tomography Centre SB RAS, Novosibirsk, Russia

OP-I-2; 11.40-12.00

Presenting author: Dr. Xiao-Ming Cao

Xiao-Ming Cao¹, Wende Hu¹, P. Hu²

Synergistic Effect of Multi Active Sites with Low-Coordination Lattice Oxygen on Catalytic Combustion of Methane over Co₃O₄(110)

1 – Center for Computational Chemistry and Research Institute of Industrial Catalysis, East China University of Science and Technology, Shanghai, China

2 – School of Chemistry and Chemical Engineering, The Queen's University of Belfast, Belfast, UK

OP-I-3; 12.00-12.20

Presenting author: Dr. Mikhail Yu. Sinev

Interrelations between Apparent Kinetics and Mechanism in Catalytic Processes of Redox Type: Oxygen Activation and Pathways in Light Alkane Oxidation

Semenov Institute of Chemical Physics RAS, Moscow, Russia

OP-I-4; 12.20-12.40

Presenting author: Dr. Aleksandr R. Cholach

Cholach A.R., Bryliakova A.A.

Resonance-Coordinated Active Sites in the Catalytic Synthesis of Ammonia

Boreskov Institute of Catalysis, Novosibirsk, Russia

OP-I-5; 12.40-13.00

Presenting author: Dr. Victor M. Chernyshev

Chernyshev V.M.¹, Astakhov A.V.¹, Chikunov I.E.¹, Tyurin R.V.¹,

Eremin D.B.², Ranny G.S.¹, Khrustalev V.N.³, Ananikov V.P.^{1,2}

“Mercury Test” and Fundamental Problems of Catalyst Poisoning in the Studies of Reaction Mechanisms

1– Platov South-Russian State Polytechnic University (NPI), Novocherkassk, Russia

2– Zelinsky Institute of Organic Chemistry, RAS, Moscow, Russia

3– National Research Center «Kurchatov Institute», Moscow, Russia

13.00

Lunch

Ballroom Hall

ORAL PRESENTATIONS

Section I. Basic concepts, theory and modeling in catalysis

Chairman: Prof. Dr. Justin S.J. Hargreaves

OP-I-6; 14.30-14.50

Presenting author: Prof. Wei Sun

Sun W., Du J.Y., Sun Q.S.

Mechanistic Insights into the Enantioselective Oxidation Reactions Catalyzed by Chiral Manganese Catalysts

State Key Laboratory for Oxo Synthesis and Selective Oxidation, Center for Excellence in Molecular Synthesis, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, Lanzhou, P. R. China

OP-I-7; 14.50-15.10

Presenting author: Prof. Dr. Konstantin M. Neyman

Metal/Metal-Oxide Interface Effects in Catalytic Materials: Theory Versus Experiment

*ICREA (Institutió Catalana de Recerca i Estudis Avançats), Barcelona, Spain
Dept. de Ciència dels Materials i Química Física, Universitat de Barcelona, Barcelona, Spain*

OP-I-9; 15.10-15.30

Presenting author: Dr. Daria A. Pichugina

Pichugina D.A., Nikitina N.A., Kuz'menko N.E.

Structure, Stability and Catalytic Properties of Gold Protected Nanoclusters from DFT Calculation

Department of Chemistry, Lomonosov Moscow State University, Moscow, Russia

OP-I-10; 15.30-15.50

Presenting author: Dr. Elena A. Lashina

Lashina E.A.^{1,3}, Chumakova N.A.^{1,3}, Chumakov G.A.^{2,3},
Kaichev V.V.^{1,3}

**Self-Sustained Oscillations in Oxidation of CH₄, C₂H₆ and C₃H₈ over
Metallic Catalysts: Mathematical Modelling Using the Quasi-Steady-
State Approximations**

1 – Borekov Institute of Catalysis, Novosibirsk, Russia

2 – Sobolev Institute of Mathematics SB RAS, Novosibirsk, Russia

3 – Novosibirsk State University, Novosibirsk, Russia

OP-I-11; 15.50-16.10

Presenting author: Dr. Marina M. Slinko

Makeev A.G., Peskov N.V., Slinko M.M., Bychkov V.Yu.,
Haritonov V.A., Korchak V.N.

**Spatial and Temporal Self-Organization during CO Oxidation
over Ni**

Semenov Institute of Chemical Physics RAS, Moscow, Russia

*Faculty of Comput. Math. and Cybernet., Lomonosov Moscow State
University, Moscow, Russia*

16.30 *Coffee break*

Ballroom Hall

ORAL PRESENTATIONS

**Section II. Physical methods, including in situ and operando techniques,
in catalysis**

Chairman: Dr. Kirill V. Kovtunov

OP-II-12; 17.00-17.20

Presenting author: Dr. Vyacheslav L.Yurpalov
Yurpalov V.L., Drozdov V.A., Nepomnyashchiy A.A., Buluchevskiy E.A.,
Lavrenov A.V.

**Deactivation Study of Pt/WO₃-Al₂O₃ Catalysts for Vegetable Oil
Hydrodeoxygenation by EPR Spectroscopy and Thermal Analysis**

Center of New Chemical Technologies BIC, Omsk, Russia

OP-II-13; 17.20-17.40

Presenting author: Dr. Andrey V. Vorotyntsev
Vorotyntsev A.V., Petukhov A.N., Markov A.N.

**Tandem Operando FTIR with GCMS Analysis for Evaluation Chlorosilanes
Disproportionation Mechanism on the Supported Ionic Liquids Like
Phase (SILLPs) Catalysts**

*Nizhny Novgorod State Technical University n.a. R.E. Alekseev, Nizhny
Novgorod, Russia*

OP-II-14; 17.40-18.00

Presenting author: Dr. Alexey A. Tsyganenko

Application of Isotopic Substitution in the IR Studies of Catalysts

*V.A.Fock Institute of Physics, St.Petersburg State University, St.Petersburg,
Russia*

ORAL PRESENTATIONS

Section III. Kinetics and mechanisms of catalyzed processes

Chairman: Prof. Dr. Paolo Fornasiero

IOP-III-1; 11.20-11.40

Presenting author: Dr. Simon Penner

Bonmassar N.¹, Schlicker L.², Gili A.², Gurlo A.², Heggen M.³,
Yunxua G.³, Doran A.⁴, Bernardi J.⁵, Penner S.¹

***In situ* - Determined Structural Dynamics as a Mechanistic Key
Parameter in the Reactivity of LaNiO₃-based Methane Dry Reforming
Catalysts**

1 – Institute of Physical Chemistry, University of Innsbruck, Innsbruck,
Austria

2 – Fachgebiet Keramische Werkstoffe/Chair of Advanced Ceramic
Materials, Institut für Werkstoffwissenschaften und -technologien,
Technische Universität Berlin, Berlin, Germany

3 – Ernst Ruska Center for Spectroscopy and Microscopy with Electrons,
Jülich, Germany

4 – Advanced Light Source, Lawrence Berkeley National Laboratory
Berkeley, California, USA

5 – University Service Center for Transmission Electron Microscopy, TU
Wien, Vienna, Austria

OP-III-2; 11.40-12.00

Presenting author: Prof. Dr. Vladislav A. Sadykov

Sadykov V.A.^{1,2}, Ereemeev N.F.¹, Rogov V.A.^{1,2}, Sadovskaya E.M.^{1,2},
Bobin A.S.^{1,2}, Avdeev V.I.¹, Chesalov Yu.A.¹, Smal E.A.¹,
Lukashevich A.I.¹, Krasnov A.V.¹, Simonov M.N.^{1,2}, Roger A.C.³

**Detailed Mechanism of Ethanol Transformation into Syngas on
Nanocomposite Catalysts**

1 – Borekov Institute of Catalysis, Novosibirsk, Russia

2 – Novosibirsk State University, Novosibirsk, Russia

3 – University of Strasbourg, Strasbourg, France

OP-III-3; 12.00-12.20

Presenting author: Dr. Boris N. Kuznetsov

Kuznetsov B.N.¹, Sudakova I.G.¹, Garyntseva N.V.¹, Tarabanko V.E.¹,
Djakovitch L.², Rataboul F.²

**Kinetic Studies and Optimization of Heterogeneous Catalytic
Oxidation Processes for the Green Biorefinery of Wood**

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

2 – IRCELYON, Lyon, France

OP-III-4; 12.20-12.40

Presenting author: Dr. Alexey A. Vedygin

Vedygin A.A.¹, Kenzhin R.M.¹, Tashlanov M.Y.^{1,2}, Stoyanovskii V.O.¹,
Plyusnin P.E.^{2,3}, Shubin Y.V.^{2,3}, Slavinskaya E.M.¹, Mishakov I.V.^{1,2}

**Impact of Metal Ratio in the Bimetallic Three-Way Catalyst on
Mechanism of the Catalysed Reactions**

1 – Boreskov Institute of Catalysis, Novosibirsk, Russia

2 – Novosibirsk State University, Novosibirsk, Russia

3 – Nikolaev Institute of Inorganic Chemistry SB RAS, Novosibirsk, Russia

OP-III-5; 12.40-13.00

Presenting author: Dr. Galina A. Bukhtiyarova

Vlasova E.N.^{1,2}, Shamanaev I.V.¹, Aleksandrov P.V.^{1,2}, Nuzhdin A.L.²,
Bukhtiyarova G.A.^{1,2}

**The Benefit of Catalytic Materials Cooperation in the
Hydrodeoxygenation of Aliphatic Oxygenates**

1 – Boreskov Institute of Catalysis, Novosibirsk, Russia

2 – Novosibirsk State University, Novosibirsk, Russia

13.00

Lunch

Eindhoven Hall

ORAL PRESENTATIONS

Section III. Kinetics and mechanisms of catalyzed processes

Chairman: Dr. Oxana A. Kholdeeva

OP-III-6; 14.30-14.50

Presenting author: Dr. Svetlana A. Yashnik

Yashnik S.A., Ismagilov Z.R.

Some Regularity and Peculiarity of SCR NO-NH₃ Behaviour of Cu-ZSM-5 with Different Copper Electronic State

Boreskov Institute of Catalysis, Novosibirsk, Russia

OP-III-7; 14.50-15.10

Presenting author: Dr. Alexander M. Khenkin

Mechanism of Activation of Molecular Oxygen by Homogeneous Vanadium Substituted Polyoxometalates

Weizmann Institute of Science, Rehovot, Israel

OP-III-8; 15.10-15.30

Presenting author: Dr. Olga V. Zalomaeva

Zalomaeva O.V.¹, Evtushok V.Yu.^{1,2}, Glazneva T.S.^{1,2}, Kholdeeva O.A.^{1,2}

Mechanistic Study on the Oxidation of Organic Sulfides and Sulfoxides with H₂O₂ over Zr-Based Metal-Organic Frameworks

1 – Boreskov Institute of Catalysis, Novosibirsk, Russia

2 – Novosibirsk State University, Novosibirsk, Russia

OP-III-9; 15.30-15.50

Presenting author: Dr. Anton A. Gabrienko

Gabrienko A.A.^{1,2}, Yashnik S.A.¹, Stepanov A.G.^{1,2}

Methane Activation on Cu/H-ZSM-5 Zeolites: A Spectroscopic Investigation of Methane Interaction with different Cu-Sites

1 – Boreskov Institute of Catalysis, Novosibirsk, Russia

2 – Novosibirsk State University, Novosibirsk, Russia

OP-III-10; 15.50-16.10

Presenting author: Dr. Anna A. Kurokhtina

Kurokhtina A.A., Larina E.V., Yarosh E.V., Lagoda N.A., Schmidt A.F.

Differential Selectivity Patterns of Mizoroki-Heck Reaction: Novel Data on the Reaction Mechanism and Active Species Nature

Chemical Department of Irkutsk State University, Irkutsk, Russia

OP-III-11; 16.10-16.30

Presenting author: Dr. Maria L. Gringolts

Morontsev A.A.¹, Denisova Yu.I.¹, Gringolts M.L.¹, Peregudov A.S.²,

Kudryavtsev Y.V.¹, Finkelshtein E.Sh.¹

New Macromolecular Cross-Metathesis Reaction in the Mixtures of Polynorbornene with Polydienes Mediated by Grubbs' Catalysts: A Kinetic Study

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

2 – A.N. Nesmeyanov Institute of Organoelement Compounds, RAS, Moscow, Russia

16.30 *Coffee break*

Eindhoven Hall

ORAL PRESENTATIONS

Section III. Kinetics and mechanisms of catalyzed processes

Chairman: Prof. Dr. Ekaterina S. Lokteva

OP-III-12; 17.00-17.20

Presenting author: Prof. Dr. Alexander G. Stepanov

Arzumanov S.S., Gabrienko A.A., Toktarev A.V., Stepanov A.G.

Different Efficiency of Zn²⁺ Cations and ZnO Species in Activation of Propane on Zn-Modified Zeolite BEA

Borekov Institute of Catalysis, Novosibirsk, Russia

OP-III-13; 17.20-17.40

Presenting author: Dr. Svetlana S. Sigaeva

Sigaeva S.S., Anoshkina E.V., Temerev V.L., Shlyapin D.A.

Interaction of Ethylene with Methane and its Pyrolysis Products on a Resistive FeCrAl Alloy Catalyst

Center of New Chemical Technologies BIC, Omsk, Russia

OP-III-18; 17.40-18.00

Presenting author: Samir Mammadov

S. Mammadov, L. Socaciu-Siebert, M. Meyer, P. Dietrich,

O. Schaff and A. Thissen

Near Ambient Pressure XPS: New Horizons

SPECS Surface Nano Analysis GmbH, Berlin, Germany

Wednesday, October 9

The hotel Golden Tulip, Rosa Khutor 4
(Naberezhnaya Panorama 3, Estosadok, Russia)*

Ballroom Hall

*Chairmen: Prof. Dr. Graham Hutchings
Prof. Dr. Christian Limberg*

PLENARY LECTURE

PL-5; 9.00-9.40

Presenting author: Prof. Dr. Hendrik Bluhm

Heterogeneous Chemistry at Liquid/Vapor Interfaces Investigated with Photoelectron Spectroscopy

Department of Inorganic Chemistry, Fritz Haber Institute of the Max Planck Society, Berlin, Germany

KEYNOTE LECTURES

KL-2; 09.40-10.10

Presenting author: Prof. Dr. Günther Rupprechter

In Situ Surface Spectroscopy and Microscopy of Reactions on Zirconia Based Model Catalysts

Institute of Materials Chemistry, Technische Universität Wien, Vienna, Austria

KL-5; 10.10-10.40

Presenting author: Prof. Dr. Jorge Gascon

Gascon J.

Multi-Scale Engineering of Catalytic Systems for the Hydrogenation of Carbon Dioxide

King Abdullah University of Science and Technology, KAUST Catalysis Center (KCC), Advanced Catalytic Materials, Thuwal, Saudi Arabia

10.40 *Coffee break*

Ballroom Hall

ORAL PRESENTATIONS

**Section II. Physical methods, including in situ and operando techniques,
in catalysis**

Chairman: Prof. Dr. Alexander G. Stepanov

IOP-II-1; 11.20-11.40

Presenting author: Dr. Evgenii V. Kondratenko

Zhang Ya.^{1,2}, Otroshchenko T.¹, Han Sh.^{1,2}, Rodemerck U.¹, Linke D.¹,
Jiang G.², Kondratenko E.V.¹

**The Potential of Time-Resolved Operando UV-vis Spectroscopy for
Deriving Insights into Coke Formation and Removal in Propane
Dehydrogenation**

*1 – Leibniz-Institut für Katalyse e.V. an der Universität Rostock, Rostock,
Germany*

*2 – State Key Laboratory of Heavy Oil Processing, China University of
Petroleum Beijing, Beijing, China*

OP-II-2; 11.40-12.00

Presenting author: Sonja Keller

Keller S., Rabeah J., Bentrup U., Brückner A.

**Impact of V and M on mechanism and performance of V/Ce_{1-x}M_xO_{2-δ}
(M=Fe, Bi, Sb) catalysts in NH₃-SCR of NO_x assessed by operando
spectroscopy**

*Leibniz-Institut für Katalyse an der Universität Rostock (LIKAT), Rostock,
Germany*

OP-II-3; 12.00-12.20

Presenting author: Dr. Vasily V. Kaichev

Kaichev V.V.^{1,2}, Chesalov Yu.A.^{1,2}, Saraev A.A.^{1,2}, Tsapina A.M.¹

**Dehydrogenation of Propane over Vanadia-Titania Catalysts: Active
Sites and Reaction Mechanism**

1 – Borekov Institute of Catalysis, Novosibirsk, Russia

2 – Novosibirsk State University, Novosibirsk, Russia

OP-II-4; 12.20-12.40

Presenting author: Raffael Rameshan

Rameshan R.¹, Lindenthal L.¹, Ruh T.¹, Raschhofer¹, Nenning A.²,
Opitz A.², Rameshan C.¹

Enhancing Catalytic Activity of Perovskites by Tailored Exsolution

*1 – Technische Universität Wien, Institute of Materials Chemistry,
Vienna, Austria*

*2 – Technische Universität Wien, Institute of Chemical Technologies and
Analytics, Vienna, Austria*

OP-II-5; 12.40-13.00

Presenting author: Dr. Dmitry A. Svintsitskiy

Svintsitskiy D.A.^{1,2}, Kardash T.Yu.^{1,2}, Lazareva E.V.¹, Saraev A.A.¹,
Derevyannikova E.A.¹, Vorokhta M.³, Šmíd B.³, Bondareva V.M.¹

**Bi-Modified MoVNbTeO Catalysts for Oxidative Dehydrogenation of
Ethane: NAP-XPS and In Situ XRD Study**

1– Boreskov Institute of Catalysis, Novosibirsk, Russia

2– Novosibirsk State University, Novosibirsk, Russia

*3 – Charles University, Department of Surface and Plasma Science,
Faculty of Mathematics and Physics, Prague, Czech Republic*

13.00 *Lunch*

Ballroom Hall

ORAL PRESENTATIONS

**Section II. Physical methods, including in situ and operando techniques,
in catalysis**

Chairman: Dr. Vasily V. Kaichev

OP-II-6; 14.30-14.50

Presenting author: Dr. Aram L. Bugaev

Bugaev A.L.¹, Guda A.A.¹, Lomachenko K.A.², Usoltsev O.A.¹,
Skorynina A.A.¹, Groppo E.³, Safonova O.⁴, van Bokhoven J.⁴

**Determination of Active Species in Pd Catalysts by Time-Resolved
X-Ray Absorption Spectroscopy**

*1 – The Smart Materials Research Institute, Southern Federal University,
Rostov-on-Don, Russia*

2 – European Synchrotron Radiation Facility, Grenoble, France

3 – University of Turin, Turin, Italy

4 – Paul Scherrer Institute, Villigen, Switzerland

OP-II-7; 14.50-15.10

Presenting author: Dr. Vadim Yu. Murzin

Murzin V.^{1,2}, Caliebe W.¹, Welter E.¹

**X-ray Absorption Spectroscopy Studies of Catalysts
at P64/P65 Beamlines**

1 – Deutsches Elektronen-Synchrotron DESY, Hamburg, Germany

2 – University of Wuppertal, Wuppertal, Germany

OP-II-8; 15.10-15.30

Presenting author: Dr. Andrey A. Saraev

Saraev A.A.¹, Tsapina A.M.¹, Fedorov A.V.¹, Trigub A.L.², Murzin V.Yu.³,
Kaichev V.V.¹

CuFeAl Nanocomposite Catalysts of CO Oxidation: Operando XAS Study

1 – Borekov Institute of Catalysis, Novosibirsk, Russia

2 – National Research Centre Kurchatov Institute, Moscow, Russia

3 – Deutsche Elektronen-Synchrotron, Hamburg, Germany

OP-II-9; 15.30-15.50

Presenting author: Dr. Alexander Yu. Klyushin

Klyushin A.Yu.^{1,2}, Jones T.², Li X.², Timpe O.², Huang X.², Lunkenbein T.², Bukhtiyarov A.V.³, Prosvirin I.P.³, Bukhtiyarov V.I.³, Hävecker M.⁴, Knop-Gericke A.^{2,4}, Schlögl R.^{1,2,4}

Au Activation via Strong Metal Support Interaction in CO oxidation

1 – Helmholtz-Zentrum Berlin/BESSY II, Berlin, Germany

2 – Fritz Haber Institute of the Max Planck Society, Department of Inorganic Chemistry, Berlin, Germany

3 – Borekov Institute of Catalysis, Novosibirsk, Russia

4 – Max Planck Institute for Chemical Energy Conversion, Department of Heterogeneous Reactions, Mülheim an der Ruhr, Germany

OP-II-10; 15.50-16.10

Presenting author: Dr. Andrey V. Bukhtiyarov

Bukhtiyarov A.V.¹, Prosvirin I.P.¹, Mamatkulov M.¹, Yudanov I.V.¹, Klyushin A.Yu.², Knop-Gericke A.², Neyman K.M.^{3,4}, Bukhtiyarov V.I.¹

CO Oxidation on the Model Pd-Au/HOPG Catalysts:**NAP XPS and MS Study**

1 – Borekov Institute of Catalysis, Novosibirsk, Russia

2 – Fritz-Haber-Institute der Max Planck Society, Berlin, Germany

3 – Departament de Ciència de Materials i Química Física and Institut de Química Teòrica i Computacional, Universitat de Barcelona, Barcelona, Spain

4 – ICREA (Institutió Catalana de Recerca i Estudis Avançats), Barcelona, Spain

OP-II-11; 16.10-16.30

Presenting author: Dr. Olga A. Bulavchenko

Bulavchenko O.A.^{1,2}, Vinokurov Z.S.^{1,2}, Afonassenko T.N.¹, Tsyryl'nikov P.G.³, Ivanchikova A.V.², Gerasimov E.Y.^{1,2}, Saraev A.A.^{1,2}, Kaichev V.V.^{1,2}, Tsybulya S.V.^{1,2}

In Situ XRD and XPS Study of the Reduction of Mixed Mn-Zr and Mn-Co Oxide Catalysts of CO Oxidation

1 – Borekov Institute of Catalysis, Novosibirsk, Russia

2 – Novosibirsk State University, Novosibirsk, Russia

3 – Center of New Chemical Technologies BIC, Omsk, Russia

16.30 *Coffee break, Poster session*

Eindhoven Hall

ORAL PRESENTATIONS

**Section IV. Advanced catalyst systems addressing current challenges:
energy, materials, sustainability**

Chairman: Prof. Dr. Vladislav A. Sadykov

IOP-IV-1; 11.20-11.40

Presenting author: Prof., Dr. Ekaterina V. Scorb

Ryzhkov N.V.¹, Nesterov P.¹, Nikolaev K.¹, Yurchenko S.O.², Skorb E.V.¹

Coupling Multilayers Regulated by pH with Photocatalytically Active Surface for Bionic Devices and Infochemistry

1 – ITMO University, Saint Petersburg, Russia

2 – Bauman Moscow State Technical University, Moscow, Russia

OP-IV-2; 11.40-12.00

Presenting author: Dr. Andrey A. Rempel

Rempel A.A.^{1,2,3}, Valeeva A.A.^{2,3}, Weinstein I.A.², Kozlova E.A.⁴,

Dorosheva I.B.^{1,2,3}, Kuznetsova Yu.V.³, Selishchev D.S.⁴

Organic Molecules Oxidation on Hybrid Titania – Cadmium Sulfide Photocatalyst Active under Visible Light

1 – Institute of Metallurgy UB RAS, Ekaterinburg, Russia

2 – NANOTECH Centre, Ural Federal University, Ekaterinburg, Russia

3 – Institute of Solid State Chemistry UB RAS, Yekaterinburg, Russia

4 – Borekov Institute of Catalysis, Novosibirsk, Russia

OP-IV-3; 12.00-12.20

Presenting author: Prof. Dr. Irina I. Mikhaleenko

Pylina A.I., Mikhaleenko I.I.

Isobutanol Dehydration over Ag-ZP catalysts Obtained by Sol-Gel Method

Peoples Friendship University of Russia (RUDN-University), Moscow, Russia

OP-IV-4; 12.20-12.40

Presenting author: Dr. Ekaterina A. Kozlova

Kozlova E.A.^{1,2}, Lyulyukin M.N.^{1,2}, Markovskaya D.V.^{1,2}, Kozlov D.V.^{1,2}

Photocatalytic CO₂ Reduction over Cd_{1-x}Zn_xS-Based Photocatalysts: Effect of the Phase Composition on the Reaction Rate and Product Distribution

1 – Borekov Institute of Catalysis, Novosibirsk, Russia

2 – Novosibirsk State University, Novosibirsk, Russia ¶

OP-IV-5; 12.40-13.00

Presenting author: Dr. Yulia S. Demidova

Demidova Yu.S.^{1,2}, Suslov E.V.³, Mozhajcev E.S.³, Simakova O.A.⁴,

Volcho K.P.^{2,3}, Salakhutdinov N.F.^{2,3}, Simakova I.L.^{1,2}, Murzin D.Yu.⁵

Hydrogenation of Monoterpenoids Catalyzed by Gold and Platinum Catalysts

1 – Borekov Institute of Catalysis, Novosibirsk, Russia

2 – Novosibirsk State University, Novosibirsk, Russia

3 – Novosibirsk Institute of Organic Chemistry, Novosibirsk, Russia

4 – Georgia Institute of Technology, Atlanta, USA

5 – Åbo Akademi University, Turku/Åbo, Finland

13.00 Lunch

Eindhoven Hall

ORAL PRESENTATIONS

**Section IV. Advanced catalyst systems addressing current challenges:
energy, materials, sustainability**

Chairman: Dr. Evgenii V. Kondratenko

OP-IV-6; 14.30-14.50

Presenting author: Prof. Dr. Ekaterina S. Lokteva

Lokteva E.S., Kaplin I.Yu., Golubina E.V., Maslakov K.I., Zhilyaev K.,
Shishova V.V., Tikhonov A.V.

**The Effect of Template Nature and the Composition of Double and
Triple Oxide Catalysts Based on CeO₂ in CO Oxidation**

Lomonosov Moscow State University, Moscow, Russia

OP-IV-7; 14.50-15.10

Presenting author: Prof. Dr. Tomasz P. Maniecki

Maniecki T.P.¹, Shtyka O.¹, Ciesielski R.¹, Kędziora A.¹,
Maniukiewicz W.¹, Zakrzewski M.¹, Dubkov S.², Gromov D.²

**Photocatalytic Reduction of CO₂ over Me (Pt, Ru, Pd, Au)/TiO₂
catalysts**

1 – Technical University of Lodz Faculty of Chemistry,

Institute of General and Ecological Chemistry, Lodz, Poland

2 – Moscow Institute of Electronic technology (MIET), Moscow, Russia

OP-IV-9; 15.10-15.30

Presenting author: Dr. Alexey A. Pimerzin

Pimerzin A.A.¹, Martynenko E.A.¹, Savinov A.A.¹, Verevkin S.P.^{1,2},
Pimerzin A.A.¹

**The Features of the Decalin Dehydrogenation over Platinum Catalysts
Supported over Various Silica-Alumina Carriers**

1 – Samara State Technical University, Samara, Russia

2 – Institute of Chemistry, University of Rostock, Germany

OP-IV-10; 15.30-15.50

Presenting author: Dr. Sukhe D. Badmaev

Badmaev S.D., Pechenkin A.A., Paukshtis E.A., Belyaev V.D.,
Sobyanin V.A.

**Catalytic Chemistry of Dimethoxymethane: Carbonylation, Steam
Reforming and Partial Oxidation**

Boreskov Institute of Catalysis, Novosibirsk, Russia

OP-IV-11; 15.50-16.10

Presenting author: Dr. Evgeny I. Vovk

Vovk E.I.¹, Zhou X.¹, Liu Z.¹, Guan C.¹, Yang Y.¹, Kong W.², Si R.³

**Why Ni/Silicalite-1 Catalyst Shows High Stability and Reactivity in Dry
Reforming of Methane?**

1 – ShanghaiTech University, Shanghai, China

2 – Shanghai Advanced Research Institute, Shanghai, China

3 – Shanghai Synchrotron Radiation Facility, Shanghai, China

16.30 *Coffee break, Poster session*

Amersfoort Hall

ORAL PRESENTATIONS

**School-Conference for young scientists
«CATALYSIS FOR ENERGY, FUELS, RENEWABLES»**

Chairmen: Prof. Dr. Jorge Gascon

Prof. Dr. Tomasz Maniecki

OPS-1; 11.20-11.35

Presenting author: Elena A. Stolyarova

Stolyarova E.A.¹, Saiko A.V.¹, Zaikina O.O.^{1,2}, Sosnin G.A.^{1,2},

Yeletsky P.M.¹, Klimov O.V.¹, Yakovlev V.A.¹, Noskov A.S.¹

NiMoP Catalyst in the Hydroprocessing of Mixture of Straight-Run Diesel Fuel and Secondary Light Fractions Obtained by Catalytic Steam Cracking of Vacuum Residue

1 – Borekov Institute of Catalysis, Novosibirsk, Russia

2 – Novosibirsk State University, Novosibirsk, Russia

OPS-2; 11.35-11.50

Presenting author: Dr. Mateusz L. Zakrzewski

Zakrzewski M., Shtyka O., Ciesielski R., Kedziora A., Maniecki T.

Determination of the Type and Reactivity of Carbon Deposits in the Mixed Reforming of Methane

Lodz University of Technology, Institute of General and Ecological Chemistry, Lodz, Poland

OPS-3; 11.50-12.05

Presenting author: Igor A. Chetyrin

Chetyrin I.A., Bukhtiyarov A.V., Prosvirin I.P., Bukhtiyarov V.I.

In situ XPS and MS Study of Methane Oxidation over Bimetallic Pt-Pd/Al₂O₃ Catalysts

Borekov Institute of Catalysis, Novosibirsk, Russia

OPS-4; 12.05-12.20

Presenting author: Anna M. Tsapina

Tsapina A.M.¹, Selivanova A.V.¹, Saraev A.A.¹, Fedorov A.V.¹,
Vorokhta M.², Šmíd B.², Kaichev V.V.¹

***In situ* NAP-XPS Study of Cu-Fe-Al-Based Nanocomposite Catalysts of CO Oxidation**

1 – Borekov Institute of Catalysis, Novosibirsk, Russia

2 – Charles University, Prague, Czech Republic

OPS-5; 12.20-12.35

Presenting author: Aleksandra V. Selivanova

Selivanova A.V.¹, Tsapina A.M.¹, Medvedeva Yu.I.², Saraev A.A.¹,
Kaichev V.V.¹, Bukhtiyarov V.I.¹

***In situ* Study of Methanol Adsorption on Pt(111) and Pd(111) at Low Temperatures by Polarization Modulation infrared Reflection Absorption Spectroscopy**

1 – Borekov Institute of Catalysis, Novosibirsk, Russia

2 – Novosibirsk State Technical University, Novosibirsk, Russia

OPS-6; 12.35-12.50

Presenting author: Daria V. Glyzdova

Glyzdova D.V.¹, Afonassenko T.N.¹, Domanina T.P.¹, Leont'eva N.N.¹,
Prosvirin I.P.², Bukhtiyarov A.V.², Shlyapin D.A.¹

Study of the Zinc Addition Influence on the Pd/Sibunit Catalyst of Selective Acetylene Hydrogenation

1 – Center of New Chemical Technologies BIC, Omsk, Russia

2 – Borekov Institute of Catalysis, Novosibirsk, Russia

OPS-7; 12.50-13.05

Presenting author: Sergey V. Zubkevich

Zubkevich S.V.¹, Tuskaev V.A.^{1,2}, Gagieva S.Ch.¹, Pavlov A.A.²,
Bulychev B.M.¹

The Formation of Precatalysts for Selective Ethylene Dimerization in System NiBr₂[bis(3,5-Dimethylpyrazol-1-yl)Methane]/PPh₃

1 – Moscow State University, Chemical Department, Moscow, Russia

2 – Nesmeyanov Institute of Organoelement Compounds, RAS, Moscow, Russia

13.00 *Lunch*

Amersfoort Hall

ORAL PRESENTATIONS

**School-Conference for young scientists
«CATALYSIS FOR ENERGY, FUELS, RENEWABLES»**

Chairmen: Dr. Simon Penner

Dr. Anton A. Gabrienko

OPS-8; 14.30-14.45

Presenting author: Rob J.G. Nuguid

Nuguid R.J.G.^{1,2}, Nachtegaal M.², Ferri D.², Kröcher O.^{1,2}

**Mechanistic Insights into the Selective Catalytic Reduction
of NO Revealed by Modulated-Excitation Raman Spectroscopy**

*1 – Ecole Polytechnique Fédérale de Lausanne (EPFL), Lausanne,
Switzerland*

2 – Paul Scherrer Institut, Villigen, Switzerland

OPS-9; 14.45-15.00

Presenting author: Nadezhda A. Nikitina

Nikitina N.A., Pichugina D.A., Kuz'menko N.E.

DFT Simulation of the Molecular Structure of VO_x/TiO₂ Catalysts

Lomonosov Moscow State University, Moscow, Russia

OPS-10; 15.00-15.15

Presenting author: Mikhail A. Salaev

Salaev M.A., Salaeva A.A., Vodyankina O.V.

**A Theoretical Study of the Effects of Promoters of Silver Catalysts for
Ethylene Epoxidation**

Tomsk State University, Tomsk, Russia

OPS-11; 15.15-15.30

Presenting author: Alina A. Skorynina

Skorynina A.A.¹, Olsbye U.², Lillerud K.P.², Lamberti C.^{1,3},
Soldatov A.V.¹, Bugaev A.L.¹

**Theoretical Investigation of Active Metal Sites in
Pt- and Pd-Functionalized Metal-Organic Frameworks**

1 – Southern Federal University, Rostov-on-Don, Russia

2 – University of Oslo, Oslo, Norway

3 – University of Turin, Turin, Italy

OPS-13; 15.30-15.45

Presenting author: Anna Yu. Kurenkova

Kurenkova A.Yu.¹, Markovskaya D.V.^{1,2}, Kozlova E.A.^{1,2}

**Photocatalytic Hydrogen Evolution from Glucose Aqueous Solutions
under Visible Light Irradiation**

1 – Borekov Institute of Catalysis, Novosibirsk, Russia

2 – Novosibirsk State University, Novosibirsk, Russia

OPS-14; 15.45-16.00

Presenting author: Maria V. Dmitrieva

Dmitrieva M.V., Zolotukhina E.V., Gerasimova E.V., Dobrovolskiy Yu.A.

**Kinetic Features of Mediator Bioelectrocatalytic Oxidation of Glucose
by «Crude» Bacterial Extracts**

Institute of Problems of Chemical Physics Chernogolovka, Russia

OPS-15; 16.00-16.15

Presenting author: Nikita S. Kovalevskiy

Kovalevskiy N.S.^{1,2}, Selishchev D.S.^{1,2}, Svintsitskiy D.A.^{1,2},
Selishcheva S.A.^{1,2}, Kozlov D.V.^{1,2}

**Synergetic Effect of Polychromatic Irradiation in the Reactions of
Photocatalytic Oxidation on the Surface of N-Doped Titanium Dioxide**

1 – Borekov Institute of Catalysis, Novosibirsk, Russia

2 – Novosibirsk State University, Novosibirsk, Russia

16.30 *Coffee break, Poster session*

Thursday, October 10

The hotel Golden Tulip, Rosa Khutor 4
(Naberezhnaya Panorama 3, Estosadok, Russia)*

Ballroom Hall

*Chairmen: Prof. Dr. Günther Rupprechter
Prof. Dr. Hendrik Bluhm*

PLENARY LECTURE

PL-6; 9.00-9.40

Presenting author: Prof. Dr. Jun Li

Nano-Catalysis vs. Dynamic Single-Atom Catalysis: Insights from Computational Modelling

Theoretical Chemistry Center, Department of Chemistry, Tsinghua University, Beijing, China

KEYNOTE LECTURES

KL-3; 09.40-10.10

Presenting author: Prof. Dr. Konstantin P. Bryliakov
Ottenbacher R.V.^{1,2}, Talsi E.P.^{1,2}, Bryliakov K.P.^{1,2}

Dynamic Nonlinear Effects in Asymmetric Catalysis

1 – Borskov Institute of Catalysis, Novosibirsk, Russia

2 – Novosibirsk State University, Novosibirsk, Russia

KL-4; 10.10-10.40

Presenting author: Prof. Dr. Justin S. J. Hargreaves

Mechanistic Considerations Related to Ammonia Synthesis

School of Chemistry, Joseph Black Building, University of Glasgow, Glasgow, UK

10.40 *Coffee break*

Ballroom Hall

ORAL PRESENTATIONS

Section III. Kinetics and mechanisms of catalyzed processes

Chairman: Prof. Dr. Mikhail Yu. Sinev

OP-III-14; 11.20-11.40

Presenting author: Prof. Dr. Valentina G. Matveeva

Matveeva V.G., Protsenko I.I., Nikoshvili L.Zh., Sulman E.M.

Kinetics of Levulinic Acid Hydrogenation to Gamma-Valerolactone Using Ru-Containing Polymeric Catalysis

Tver Technical University, Tver, Russia

OP-III-15; 11.40-12.00

Presenting author: Dr. Vladimir A. Zakharov

Zakharov V.A., Nikolaeva M.I., Matsko M.A., Barabanov A.A.,

Sukulova V.V.

Stereospecific Propylene Polymerization over Supported Titanium-Magnesium Catalysts: Study of the Effect of Catalyst Composition on the Distribution of Active Sites According to Stereospecificity

Borekov Institute of Catalysis, Novosibirsk, Russia

OP-III-16; 12.00-12.20

Presenting author: Ildar I. Salakhov

Olefins and Dienes Polymerization over Ziegler-Natta Catalysts Modified with Various Chlorohydrocarbons

R&D Centre PJSC Nizhnekamskneftekhim, Nizhnekamsk, Russia

OP-III-17; 12.20-12.40

Presenting author: Viktor Yu. Bychkov

Bychkov V.Yu., Tulenin Yu.P., Slinko M.M., Korchak V.N.

**Effect of Surface Oxidation Degree on Catalytic Activity
of Metallic Ni and Co**

Semenov Institute of Chemical Physics RAS, Moscow, Russia

Ballroom Hall

13.00 **Closing ceremony**

13.20 *Lunch*

15.00 ***Excursion around Rosa Khutor***

Eindhoven Hall

ORAL PRESENTATIONS

**Section IV. Advanced catalyst systems addressing current challenges:
energy, materials, sustainability**

Chairman: Dr. Ekaterina A. Kozlova

OP-IV-12; 11.20-11.40

Presenting author: Prof. Dr. Oxana P. Taran

Taran O.P.^{1,2}, Yashnik S.A.², Boltenkov V.V.², Parkhomchuk E.V.²,
Sashkina K.A.², Babushkin D.E.², Parmon V.N.²

**Formic Acid Production via Methane Peroxide Oxidation over Oxalic
Acid Activated Fe-MFI Catalysts. Mechanistic Insights**

*1 – Institute of Chemistry and Chemical Technology SB RAS, FRC KSC SB
RAS, Krasnoyarsk*

2 – Borekov Institute of Catalysis, Novosibirsk, Russia

OP-IV-13; 11.40-12.00

Presenting author: Dr. Radoslaw Ciesielski

Ciesielski R., Zakrzewski M., Kubicki J., Maniukiewicz W.,
Kedziora A., Maniecki T.P.

**Mechanistic Studies of Methanol Synthesis Reaction over
Cu and Pd-Cu Catalysts**

Lodz University of Technology, Lodz, Poland

OP-IV-14; 12.00-12.20

Presenting author: Dr. Tamara S. Kharlamova

Kharlamova T., Timofeev K., Vodyankina O.

**The Role of Structural, Redox and Acid-Base Properties
of Monolayer MgVO_x/Al₂O₃ Catalysts in Oxidative Dehydrogenation of
Propane**

Tomsk State University, Tomsk, Russia

OP-IV-15; 12.20-12.40

Presenting author: Dr. Liudmila B. Okhlopkova

Okhlopkova L.B.¹, Kerzhentsev M.A.¹, Ismagilov Z.R.^{1,2}

Titania-Zirconia Coatings of a Capillary Microreactor for the Selective Hydrogenation of 2-Methyl-3-Butyn-2-ol Using a PdZn/Ti_xZr_{1-x}O₂ Catalyst: Stability, Effect of the Catalyst's Activation Conditions and a Kinetic Study

1 – Borekov Institute of Catalysis, Novosibirsk, Russia

2 – Institute of Coal Chemistry and Material Science FRC CCC SB RAS, Kemerovo, Russia

Ballroom Hall

13.00 **Closing ceremony**

13.20 *Lunch*

15.00 ***Excursion around Rosa Khutor***

POSTER PRESENTATIONS

Section I. Basic concepts, theory and modeling in catalysis

PP-I-1

Belozertseva N.E., Belinskaya N.S.

Computer Simulation System for the Catalytic Dewaxing Process

Tomsk Polytechnic University, Tomsk, Russia

PP-I-3

Dyusembaeva A.A., Vershinin V.I.

Computer Simulation of the Kinetics of a Multistage Process as a Method of Studying the Mechanism of Catalytic Naphtha Reforming

Dostoevsky Omsk State University, Omsk, Russia

PP-I-4

Grinvald I.I., Kalagaev I.Yu., Spirin I.A., Kapustin R.V., Petukhov A.N.

Catalysis of Hydrogen Atom Transfer in Water Complexes with Organic Compounds

Nizhny Novgorod State Technical University, Nizhny Novgorod, Russia

PP-I-6

Kolesnikov I.M.

Generalized Quantum-Chemical Principle and the Theory of Catalysis by Polyedres as a Basis Formulating the Mechanisms of Chemical and Catalytic Processes

Gubkin Russian State University of Oil and Gas, Moscow, Russia

PP-I-9

Mashkovsky I.S., Rassolov A.V., Smirnova N.S., Baeva G.N., Bragina G.O., Stakheev A.Yu.

Tuning the Structure of Active Sites and Catalytic Performance of Pd-Ag/Al₂O₃ Selective Hydrogenation Catalyst by CO and O₂ Adsorption-Induced Segregation

N.D. Zelinsky Institute of Organic Chemistry RAS, Moscow, Russia

PP-I-10

Mashkovsky I.S.¹, Smirnova N.S.¹, Markov P.V.¹, Baeva G.N.¹,
Bragina G.O.¹, Bukhtiyarov A.V.², Prosvirin I.P.², Bukhtiyarov V.I.²,
Stakheev A.Yu.¹

Mild Oxidative-Reductive Treatments as an Effective Way to Tune the Surface Structure and Catalytic Properties of PdIn Catalyst in Liquid-Phase Hydrogenation of Substituted Alkynes

1 – *N.D. Zelinsky Institute of Organic Chemistry RAS, Moscow, Russia*

2 – *Boreskov Institute of Catalysis, Novosibirsk, Russia*

PP-I-12

Mytareva A.I., Bokarev D.A., Baeva G.N., Belyankin A.Yu., Stakheev A.Yu.

Dual-Zone Zeolite Catalyst for Complex Abatement of Power Plant and Automotive Emissions

N.D. Zelinsky Institute of Organic Chemistry RAS, Moscow, Russia

PP-I-16

Vovdenko A.G.¹, Vovdenko M.K.¹, Koledina K.F.^{1,2}, Gubaydullin I.M.^{1,2}

Mathematical Modeling of Reaction Benzylbutyl Ethersynthesis

1 – *Institute of Petrochemistry and Catalysis RAS, Ufa, Russia*

2 – *Ufa State Petroleum Technological University, Ufa, Russia*

Section II. Physical methods, including in situ and operando techniques, in catalysis

PP-II-1

Vinokurov Z.S.^{1,2}, Bulavchenko O.A.^{1,2}, Afonasenkov T.N.³, Tsybulya S.V.^{1,2}

Influence of CO oxidation conditions on the MnOx-ZrOx catalyst structure: in situ XRD and MS study

1 – *Boriskov Institute of Catalysis, Novosibirsk, Russia*

2 – *Novosibirsk State University, Novosibirsk, Russia*

3 – *Center of New Chemical Technologies BIC, Omsk, Russia*

PP-II-2

Parfenov M.V., Ivanov D.P., Dubkov K.A., Kharitonov A.S.

Gas-Phase Selective Oxidation of Propane-Propylene Mixture with Nitrous Oxide

Boriskov Institute of Catalysis, Novosibirsk, Russia

PP-II-3

Gabrienko A.A.^{1,2}, Danilova I.G.², Stepanov A.G.^{1,2}

Zeolite Brønsted Acidity: Direct Quantitative Characterization by Joint FTIR Spectroscopy and Solid-State ¹H MAS NMR Approach

1 – *Novosibirsk State University, Novosibirsk, Russia*

2 – *Boriskov Institute of Catalysis, Novosibirsk, Russia*

PP-II-4

Kamyshova E., Skorynina A., Bugaev A., Soldatov A.

X-ray Absorption Spectroscopy Study of Metal-Organic Frameworks

Functionalized by Pd for Catalytic Hydrogenation of CO₂

Southern Federal University, Rostov-on-Don, Russia

PP-II-5

Klokov S.V.¹, Lokteva E.S.¹, Golubina E.V.¹, Maslakov K.I.¹,

Isaikina O.Y.¹, Trenikhin M.V.^{2,3}

The Nature of Active Sites in PdCo/C Catalysts Prepared by Pyrolysis of Wood Sawdust Impregnated with Pd(NO₃)₂ and Co(NO₃)₂

in Hydrodechlorination of Chlorobenzene

1 – *Lomonosov Moscow State University, Moscow, Russia*

2 – *Omsk State Technical University, Omsk, Russia*

3 – *Omsk Scientific Centre of SB RAS, Omsk, Russia*

PP-II-7

Köpfle N.¹, Götsch T., Grünbacher M.¹, Carbonio E. A.², Hävecker M.², Knop-Gericke A.², Schlicker L.³, Doran A.⁴, Kober D.³, Gurlo A.³, Penner S.¹, Klötzer B.¹

Zirconium-Assisted Activation of Palladium to Boost Syngas Production by Methane Dry Reforming

1 – *Institute of Physical Chemistry, University of Innsbruck, Innsbruck, Austria*

2 – *Department of Inorganic Chemistry Fritz-Haber-Institute of the Max-Planck-Society, Berlin, Germany*

3 – *Fachgebiet Keramische Werkstoffe/Chair of Advanced Ceramic Materials, Institut für Werkstoffwissenschaften und -technologien, Technische Universität Berlin, Berlin, Germany*

4 – *Advanced Light Source, Lawrence Berkeley National Laboratory Berkeley, California, USA*

PP-II-8

Selivanova A.V.¹, Kurenkova A.Y.¹, Tsapina A.M.¹, Saraev A.A.^{1,2}, Kozlova E.A.^{1,2}, Kaichev V.V.^{1,2}

Photocatalytic Hydrogen Production over Titania-Based Photocatalysts

1 – *Borekov Institute of Catalysis, Novosibirsk, Russia*

2 – *Novosibirsk State University, Novosibirsk, Russia*

PP-II-9

Shemet D.B., Pryadchenko V.V., Menshikov V.S., Nevelskaya A.K., Guterma V.E., Bugaev L.A.

Atomic Structure and Catalytic Properties of Bimetallic Nanoparticles PtM (M = Ni, Co, Cu) in Metall-Carbon PtM/C Electrocatalysts for Low-Temperature Fuel Cells

Southern Federal University, Rostov-on-Don, Russia

PP-II-10

Shilina M.I.¹, Gloriov I.P.¹, Zhidomirov G.M.^{1,2}

Adsorption and Oxidation of Carbon Monoxide on Co - ZSM-5 Zeolites

1 – *Lomonosov Moscow State University, Moscow, Russia*

2 – *Borekov Institute of Catalysis, Novosibirsk, Russia*

PP-II-11

Shmakov A.N., Nesterov N.S., Yakushkin S.S., Martyanov O.N.

***In Situ* High Energy XRD Study of Reduction Process of Transition Metal Oxides in Supercritical Isopropanol**

Borekov Institute of Catalysis, Novosibirsk, Russia

PP-II-12

Spirin I.A., Grinvald I.I., Kalagaev I.Yu., Kapustin R.V.

IR Study of Hydrogen Atom Transfer in Hydrates of Alkali Metal Halides

Nizhny Novgorod Technical State University n.a. R.E. Alekseev, Nizhny Novgorod, Russia

PP-II-13

Usoltsev O.A.¹, Bugaev A.L.¹, Skorynina A.A.¹, Tereshchenko A.A.¹, Lomachenko K.A.², Guda A.A.¹, Groppo E.³, Pellegrini R.⁴, Lamberti C.^{1,3}, Soldatov A.V.¹

Dynamics of the Atomic and Electronic Structure of Nanoparticles of Noble Metals during Catalytic Reactions

1 – Southern Federal University, Rostov-on-Don, Russia

2 – European Synchrotron Radiation Facility, Grenoble, France

3 – University of Turin, Turin, Italy

4 – Chimet SpA - Catalyst Division, Arezzo, Italy

Section III. Kinetics and mechanisms of catalyzed processes

PP-III-1

Agafonov Yu.A.¹, Gaidai N.A.¹, Botavina M.A.², Lapidus A.L.¹

Specifics of Propane Dehydrogenation over Silica Supported Gallium Catalysts

1 – *N.D.Zelinsky Institute of Organic Chemistry RAS, Moscow, Russia*

2 – *University of Torino, Department of IPM Chemistry and NIS Centre, Torino, Italy*

PP-III-2

Luu Cam Loc¹, Dao Thi Kim Thoa², Nguyen Tri¹, Ha Cam Anh², Gaidai N.A.³,
Agafonov Yu.A.³, Lapidus A.L.³

HZSM-5 Supported Pt- and Pd-Catalysts Doped by Ni for Hydro-Isomerisation of n-Hexane

1 – *Institute of Chemical Technology, Vietnam Acad. Sci. Techn., Ho Chi Minh City, Vietnam*

2 – *Ho Chi Minh City University of Technology, Ho Chi Minh City, Vietnam,*

3 – *N.D. Zelinsky Institute of Organic Chemistry, Russian Acad. Sci., Moscow, Russia*

PP-III-3

Badyrova N.M., Nindakova L.O.

Hydrogenation of Dimethyl Itaconate over Rhodium Nanoparticles, Modified by Optically Active Quarternary Ammonium Salts

Irkutsk National Research Technical University (IRNITU), Irkutsk, Russia

PP-III-5

Bogdanov I.A., Altynov A.A., Kirgina M.V.

Investigation the Transformations Regularities of Stable Gas Condensate Hydrocarbons during Their Processing on Zeolite Catalysts

Tomsk Polytechnic University, Tomsk, Russia

PP-III-7

Ottenbacher R.V.^{1,2}, Sun W.³, Sun, Q.³, Bryliakov K. P.^{1,2}

Benzylic C-H Hydroxylations in the Presence of Bioinspired Mn Complexes: the Origin of Acetate Products

1 – *Boreskov Institute of Catalysis, Novosibirsk, Russia*

2 – *Novosibirsk State University, Novosibirsk, Russia*

3 – *State Key Laboratory for Oxo Synthesis and Selective Oxidation, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, Lanzhou, China*

PP-III-12

Chichkan A.S., Chesnokov V.V.

Catalytic Coking of High Molecular Hydrocarbons

Boreskov Institute of Catalysis, Novosibirsk, Russia

PP-III-13

Durakov S.A., Flid V.R., Shamsiev R.S.

Palladium-Catalyzed Allylation and Hydroallylation of Norbornadiene: Key Intermediates and Mechanism

MIREA – Russian Technological University, Institute of Fine Chemical Technologies named after M.V. Lomonosov, Moscow, Russia

PP-III-14

Elimanova G.G., Batyrshin N.N., Kharlampidi Kh.E.

The Mechanism of Decomposition and Stabilization of Molybdenum Epoxidation Catalysts for Olefinic Hydrocarbons

Kazan National Research Technological University, Kazan, Russia

PP-III-17

Gavrilova N.N., Osipenko N.N., Nazarov V.V., Sapunov V.N., Skudin V.V.

Kinetic Experiment of Dry Reforming of Methane on Mo₂C/CeZrO₂ Catalysts

D. Mendeleev University of Chemical Technology, Moscow, Russia

PP-III-18

Golub F.S.¹, Beloshapkin S.A.², Bolotov V.A.¹, Parmon V.N.¹, Bulushev D.A.¹

Hydrogen Production from Formic Acid Decomposition over Pd/C Catalysts: Effect of Deposition of N-Containing Precursors on Carbon Support

1 – *Boreskov Institute of Catalysis, Novosibirsk, Russia*

2 – *University of Limerick, Limerick, Ireland*

PP-III-19

Gorokhova E.O.¹, Kulchakovskaya E.V.¹, Asalieva E.Yu.¹, Sineva L.V.^{1,2},
Mordkovich V.Z.^{1,2}

Catalytic Transformations of 1-Heptene and n-Heptane over Selected Zeolites at 170–260 °C

1 – *Technological Institute for Superhard and Novel Carbon Materials, Troitsk, Moscow, Russia*

2 – *INFRA Technology LLC, Moscow, Russia*

PP-III-23

Ivanchikova I.D.¹, Evtushok V.Yu.^{1,2}, Suboch A.N.^{1,2},
Podyacheva O.Yu.^{1,2}, Kholdeeva O.A.^{1,2}

Polyoxotungstate Supported on Carbon Nanotubes (CNT) as Effective Heterogeneous Catalyst for Epoxidation of Olefins

1 – *Boreskov Institute of Catalysis, Novosibirsk, Russia*

2 – *Novosibirsk State University, Novosibirsk, Russia*

PP-III-24

Kaichev V.V., Maksimov G.M., Fedorov A.V., Gerasimov E.Yu.,
Tsapina A.M., Selivanova A.V., Saraev A.A.

Size Effect in the Oxidation of CO and Methane on Pd/TiO₂ Catalysts

Boreskov Institute of Catalysis, Novosibirsk, Russia

PP-III-25

Koledina K.F.^{1,2}, Koledin S.N.², Gubaydullin I.M.^{1,2}

Kinetic Model of the Reaction of Dimethylcarbonate with Alcohols in the Presence Metal Complex Catalysts

1 – *Institute of Petrochemistry and Catalysis, Russian Academy of Sciences, Ufa, Russia*

2 – *Ufa State Petroleum Technological University, Ufa, Russia*

PP-III-26

Larina E.V., Lagoda N.A., Yarosh E.V., Kurokhtina A.A., Schmidt A.F.

Differential Selectivity Measurements of Phosphine-Containing and Phosphine-Free Catalytic Systems of Mizoroki-Heck Reaction with Aromatic Carboxylic Anhydrides

Irkutsk State University, Chemical Department, Irkutsk, Russia

PP-III-27

Lokteva E.S.¹, Golubina E.V.¹, Gurbanova U.D.², Kharlanov A.N.¹

The Effect of Pd/Al₂O₃ Modification with Si,W-Heteropolyacid on the Mechanism of 1,3,5-Trichlorobenzene Multi-Phase Hydrodechlorination

1 – *Lomonosov Moscow State University, Moscow, Russia*

2 – *Baku Branch of Lomonosov Moscow State University, Baku, Azerbaijan*

PP-III-28

Nikoshvili L.Zh.¹, Matveeva V.G.¹, Sulman E.M.¹, Kiwi-Minsker L.²

Influence of the Affinity of Metal Precursor to Polymeric Support on Activity of Ligandless Catalysts of Suzuki Cross-Coupling

1 – *Tver Technical University, Tver, Russia*

2 – *Tver State University, Tver, Russia*

PP-III-29

Mukhamediarova A.N., Boretsky K.S., Egorova S.R.,

Ermolaev R.V., Lamberov A.A.

Influence of a Hydrothermal Treatment of the Amorphous Aluminum Compounds on the Properties of the Obtained Aluminum Hydroxides

Butlerov Institute of Chemistry KFU, Kazan, Russia

PP-III-30

Palaznik O.M., Nedorezova P.M., Polshikov S.V., Klyamkina A.N.

Polymerization of Propylene on Metal-Complex Catalysts in the Presence of Carbon Nanoparticles

Semenov Institute of Chemical Physics, Russian Academy of Science, Moscow, Russia

PP-III-33

Makarov D.A., Vorotyntsev A.V., Petukhov A.N., Markov A.N.

Investigation of the Mechanism of Triethoxysilane Dismutation over Ion-Exchange Resin in a Free Base Form via Operando FTIR Technique

Nizhny Novgorod State Technical University n.a. R.E. Alekseev, Nizhny Novgorod, Russia

PP-III-34

Lomonosov V.I., Gordienko Yu.A., Ponomareva E.A., Sinev M.Yu.

Alternation in Kinetics of C₁-C₂ Hydrocarbon Oxidation in the Presence of Model OCM Catalysts

Semenov Institute of Chemical Physics RAS, Moscow, Russia

PP-III-35

Ponyaev A.I., Glukhova Y.S., Frolov A.N.

Photocatalysis of Hydrogen Evolution from Water by Systems Based on Boron Chelates with Diheterylamine

*Saint-Petersburg State Institute of Technology (Technical University),
Saint-Petersburg, Russia*

PP-III-37

Potapova N.V., Kasaikina O.T.

Catalytic Generation of Radicals in Mixed Micelles {Acetylcholine – Hydroperoxide}

Semenov Institute of Chemical Physics RAS, Moscow, Russia

PP-III-38

Rishina L.A.¹, Kissin Y.V.², Gagieva S.Ch.³, Lalayan S.S.¹

New Cocatalyst for Alkene Polymerization Reactions with Transition Metal Catalysts

1 – Semenov Institute of Chemical Physics, Rus. Acad. Sci., Moscow, Russia

2 – Rutgers, The State University of New Jersey, Department of Chemistry and Chemical Biology, USA

3 – Moscow State University, Department of Chemistry, Moscow, Russia

PP-III-39

Shangareev D.R., Antonova T.N., Sivova T.S., Abramov I.G.

The Mechanism of Cyclooctene Epoxide Formation in the Process of Catalytic Liquid-Phase Oxidation of Cyclooctene by Molecular Oxygen

Yaroslavl State Technical University, Yaroslavl, Russia

PP-III-40

Shorayeva K.A.¹, Massalimova B.K.¹, Sadykov V.A.², Nauryzkulova S.M.¹, Altyzbekova D.T.¹, Jetpisbayeva G.D.¹

Polyoxide Catalysts Based on Pillared Clays for the Oxidative Dehydrogenation of Ethane to Ethylene

1 – Taraz State University, Taraz, Kazakhstan

2 – Boreskov Institute of Catalysis, Novosibirsk, Russia

PP-III-42

Simakova I.L.^{1,2}, Demidova Yu.S.^{1,2}, Devi N.³, Dhepe P.³, Bokade V.³

Improvement of Selectivity to γ -Valerolactone in Hydrodeoxygenation of Lignocellulose Derived Levulinic Acid by Ir Catalyst Modification

1 – Boreskov Institute of Catalysis, Novosibirsk, Russia

2 – Novosibirsk State University, Novosibirsk, Russia

3 – CSIR-National Chemical Laboratory, Pune, India

PP-III-47

Tregubenko V.Yu.¹, Vinichenko N.V.¹, Belopukhov E.A.¹,
Paukshtis E.A.², Belyi A.S.¹

Trimetallic Naphtha Reforming Catalysts. Properties of the Metal and Acid Functions of Pt–Re–Zr/ γ -Al₂O₃–Cl

1 – Center of New Chemical Technologies BIC, Omsk, Russia

2 – Boreskov Institute of Catalysis, Novosibirsk, Russia

PP-III-49

Vasileva E.A., Mukhamedzyanov R.R., Sitmuratov T.S.,
Petukhov A.A., Akhmedyanova R.A.

Features of the Oxidation of Light Saturated Hydrocarbons under Heterogeneous Catalysis

Kazan National Research Technological University, Kazan, Russia

PP-III-52

Yushchenko D.Yu., Pai Z.P., Khlebnikova T.B.

Oxidation of N-(Phosphonomethyl) Iminodiacetic Acid with Hydrogen Peroxide in Phase-Transfer Conditions

Boreskov Institute of Catalysis, Novosibirsk, Russia

Section IV. Advanced catalyst systems addressing current challenges: energy, materials, sustainability

PP-IV-1

Alikin E.A.¹, Denisov S.P.¹, Baksheev E.O.^{1,2}, Kenzhin R.M.³, Vedyagin A.A.³

The Effect of Barium on Behaviour of the OSC-Material in the Composition of Three-Way Catalysts

1 – Ecoalliance LTD, Novouralsk, Russia

2 – Ural Federal University, Yekaterinburg, Russia

3 – Boreskov Institute of Catalysis, Novosibirsk, Russia

PP-IV-3

Bereskina P.A., Mashkovtsev M.A., Guryanova A.A., Osolihina A.Y.

The Influence of Synthesis Parameters on Surface Characteristics of Alumina

Ural Federal University, Ekaterinburg, Russia

PP-IV-4

Bryzhin A.¹, Gantman M.², Buryak A.³, Tarkhanova I.¹

Oxidative Desulfurization of Diesel Fuel Catalysed by Brønsted Acidic Ionic Liquids with Heteropolyacids Immobilized on γ -Al₂O₃ and Silica

1 – M.V. Lomonosov Moscow State University, Moscow, Russia

2 – Friedrich-Alexander Universität Erlangen-Nürnberg, Erlangen, Germany

3 – Frumkin Institute of Physical Chemistry and Electrochemistry, Russian Academy of Sciences, Moscow, Russia

PP-IV-8

Demikhova N.R., Artemova M.I., Nedolivko V.V., Glotov A.P.,

Vinokurov V.A.

Investigation of New Functional Micro-Mesoporous Platinum Containing Catalysts Based on Halloysite Nanotubes and ZSM-5 Type Zeolite for Xylene Isomerization

Gubkin Russian State University of Oil and Gas, Moscow, Russia

PP-IV-9

Dolganov A.V., Tanaseychuk B.S., Chernyaeva O.Yu. ,

Selivanova Yu.M., Yudina A.Yu., Grigorian K.A., Yurova V.Yu.

2,4,6-Triphenylpyridine as “Metal-Free” Electrocatalyst of Hydrogen Evolution Reaction (HER)

Mordovian Ogarev State University, Saransk, Russia

PP-IV-10

Dronov A.A., Pinchuk O.V., Zheleznyakova A.V., Savchuk T.P.,
Kamaleev M.F., Dronova D.A., Gavrilin I.M.

**Formation and Characterization of Photocatalytic Heterostructures
Based on TiO₂ NTs/CuO NPs**

*National Research University of Electronic Technology - MIET, Zelenograd,
Russia*

PP-IV-12

Gavrilov Yu.A.¹, Pletneva I.V.¹, Nefedov S.E.²

**Homogeneous Catalysts of Oxidation of Thiols by Oxygen in Hydrocarbon
Media**

1 – *Semenov Institute of Chemical Physics RAS, Moscow, Russia*

2 – *Kurnakov Institute of General and Inorganic Chemistry RAS, Moscow,
Russia*

PP-IV-14

Golubina E.V., Lokteva E.S., Kavalerskaya N.E., Kharlanov A.N., Maslakov K.I.

**Influence of Ni Deposition Method on Catalytic Properties
of Ni/Al₂O₃ in Hydrodechlorination of Chlorobenzenes**

Lomonosov Moscow State University, Moscow, Russia

PP-IV-15

Sutormina E.F.¹, Isupova L.A.¹, Rogov V.A.^{1,2}, Ivanova Y.A.¹, Vovk E.I.³

**The Effect of Sr Substitution in Bulk and Supported La_{1-x}Sr_xFeO₃ Perovskites
on the Catalytic Activity in NH₃ Oxidation and N₂O Decomposition Reactions**

1 – *Boreskov Institute of Catalysis, Novosibirsk, Russia*

2 – *Novosibirsk State University, Novosibirsk, Russia*

3 – *ShanghaiTech University, Shanghai, China*

PP-IV-16

Ivanova Y.A.¹, Sutormina E.F.¹, Nartova A.V.^{1,2}, Isupova L.A.¹

Oxidative Coupling of Methane over Different Sr₂TiO₄ Catalysts

1 – Borekov Institute of Catalysis, Novosibirsk, Russia

2 – Novosibirsk State University, Novosibirsk, Russia

PP-IV-17

Jirátová K.¹, Pacultová K.², Balabánová J.¹, Karásková K.², Klegová A.²,
Bílková T.², Jandová V.¹, Koštejn M.¹, Obalová L.²

Precipitated K-Promoted Co-Mn-Al Mixed Oxides for Direct NO Decomposition: Preparation and Properties

1 – Institute of Chemical Process Fundamentals of the CAS, v.v.i., Prague, Czech Republic

2 – VSB-TU of Ostrava, Institute of Environmental Technology, Ostrava, Czech Republic

PP-IV-18

Kabachkov E.N.^{1,2}, Balikhin I.L.^{1,2}, Vershinin N.N.¹, Efimov O.N.¹,
Kurkin E.N.^{1,2}

Synthesis and Properties of Catalyst Based on Titanium Dioxide Modified by Nanomaterials and Catalytic Metals (Pt, Pd) Used in Air Purifiers

1 – Institute of Problems of Chemical Physics RAS, Chernogolovka, Moscow region, Russia

2 – Scientific Center of the Russian Academy of Sciences in Chernogolovka, Chernogolovka, Moscow region, Russia

PP-IV-19

Kaplin I.Yu., Lokteva E.S., Golubina E.V., Maslakov K.I., Shishova V.V., Fionov A.V.

Effect of the Nature of Manganese Species in Mn-Ce-Zr Mixed Oxide Systems on Catalytic Properties in CO Oxidation

Lomonosov Moscow State University, Moscow, Russia

PP-IV-20

Karášková K.¹, Pacultová K.¹, Klegova A.¹, Fridrichová D.^{1,2}, Kiška T.¹, Jiratová K.³, Obalová L.¹

K/Co-Mg-Mn-Al Mixed Oxide Catalyst System for Direct NO Decomposition

1 – *Institute of Environmental Technology, VSB – Technical University of Ostrava, Ostrava, Czech Republic*

2 – *Centre Energy Units for Utilization of Non-traditional Energy Source, VSB-Technical University of Ostrava, Ostrava, Czech Republic*

3 – *Institute of Chemical Process Fundamentals of the CAS, Prague, Czech Republic*

PP-IV-22

Kokliukhin A.S.¹, Ishutenko D.I.¹, Mozhaev A.V.¹, Pimerzin A.A.¹, Nikulshin P.A.^{1,2}

The Influence of the Nature of the Support on the Inhibitory Effect of Oxygen-Containing Compounds in the Process of co-Hydrotreatment of Model Compounds of Petroleum and Renewable Raw Materials

1 – *Samara State Technical University, Samara, Russia*

2 – *All-Russia Research Institute of Oil Refining, Moscow, Russia*

PP-IV-23

Koskin A.P.¹, Vedyagin A.A.^{1,2}

Novel lanthanide-Grafted Catalytic Systems for Alcohols Acylation and Carboxylic Esters Hydrolysis

1 – *Boreskov Institute of Catalysis, Novosibirsk, Russia*

2 – *National Research Tomsk Polytechnic University, Tomsk, Russia*

PP-IV-24

Sheshko T.F.¹, Sharaeva A.A.¹, Kost V.V.¹, Kryuchkova T.A.¹, Chislova I.V.², Zvereva I.A.², Yafarova L.V.²

SrO Integration Effect on Structure and Activity of Perovskite-Type Oxides GdFeO₃ for DRM and FTS

1 – *Peoples' Friendship University of Russia (RUDN University), Faculty of Science, Physical and Colloidal Chemistry Department, Moscow, Russian Federation*

2 – *Saint-Petersburg State University, Saint-Petersburg, Russia*

PP-IV-25

Kovalev E.P.^{1,2}, Lazareva E.V.¹, Bondareva V.M.¹, Svintsitskiy D.A.¹,
Kardash T.Yu.^{1,2}

Effect of MoVTenbO Catalyst Modification by P on the Selective Oxidative Transformations of Light Alkanes

1 – Boreskov Institute of Catalysis, Novosibirsk, Russia

2 – Novosibirsk State University, Novosibirsk, Russia

PP-IV-26

Kozhevnikova N.S.¹, Gorbunova T.I.², Pervova M.G.², Enyashin A.N.¹, Vorokh A.S.¹

Mechanisms of Catalytic Degradation of Chloroaromatic Compounds in Presence of CdS/TiO₂ Composite

1 – Institute of Solid State Chemistry of UrB RAS, Ekaterinburg, Russia

2 – I.Ya. Postovskii Institute of Organic Synthesis of UrB RAS, Ekaterinburg, Russia

PP-IV-27

Kuriganova A.B.¹, Faddeev N.A.¹, Leontyev I.N.², Smirnova N.V.¹

New Electrochemical Approach to Synthesis of Pd/C Catalysts and Its Electrochemical Performance

1 – Platov South-Russian State Polytechnic University (NPI), Novocheerkassk, Russia

2 – Southern Federal University, Rostov-on-Don, Russia

PP-IV-28

Lubov D.P.^{1,2}, Talsi E.P.^{1,2}, Bryliakov K.P.^{1,2}

Benzyllic C-H Oxidation of Arylalkanes with Peroxyacetic Acid in the Presence of Palladium-Aminopyridine Complexes

1 – Boreskov Institute of Catalysis, Novosibirsk, Russia

2 – Novosibirsk State University, Novosibirsk, Russia

PP-IV-29

Maniecki T.P., Shtyka O., Sorokina L., Ciesielski R., Kędziora A.,
Maniukiewicz W., Zakrzewski M., Dubkov S., Szynkowska I., Gromov D.

Electrochemical Synthesis of a Novel Me/TiO₂-CNT Catalyst and Its Performance in the Photocatalytic Reduction of Carbon Dioxide

Technical University of Lodz Faculty of Chemistry,

Institute of General and Ecological Chemistry, Lodz, Poland

PP-IV-30

Markova E.B., Kovtun S.O., Savchenko A.S., Torbeeva A.A., Cherednichenko A.G.

**The Effect of Metal in the B-Position of Complex Oxides
of Composition $A_2B_2O_7$ on the Process of Propane Dehydrogenation**

Peoples' Friendship University of Russia (RUDN University), Moscow, Russia

PP-IV-31

Sulman E.M., Manaenkov O.V., Kislitsa O.V., Ratkevich E.A., Matveeva V.G.,
Sulman M.G.

Ru- Fe_3O_4 - SiO_2 Catalyst for Polysaccharide Conversion

Tver State Technical University, Tver, Russia

PP-IV-32

Gongxuan Lu

**The Inhibition of Hydrogen and Oxygen Recombination by Halogen Atoms
and its Effect on Over-All Water Splitting over Pt- TiO_2**

*Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, Lanzhou,
China*

PP-IV-33

Mikheeva N.N.¹, Zaikovskii V.I.², Mamontov G.V.¹

Design of Ag- CeO_2 /SBA-15 Catalysts for Deep Oxidation of Toluene

1 – Tomsk State University, Tomsk, Russia

2 – Boreskov Institute of Catalysis, Novosibirsk, Russia

PP-IV-34

Beregovtsova N.G.¹, Baryshnikov S.V.¹, Miroshnikova A.V.¹,

Sharypov V.I.¹, Lavrenov A.V.², Kuznetsov B.N.¹

**Influence of Borate-Containing Alumina Catalysts on the Conversion of
Ethanol-Lignin from Pine Wood in a Supercritical Ethanol**

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Krasnoyarsk, Russia*

2 – Center of New Chemical Technologies BIC, Omsk, Russia

PP-IV-35

Morozova O.S.¹, Firsova A.A.¹, Tyulenin Yu.P.¹, Vorobieva G.A.¹, Leonov A.V.²

Mechanochemical Synthesis – Alternative Effective Technique for the Composite Catalysts Preparation

1 – *Semenov Institute of Chemical Physics RAS, Moscow, Russia*

2 – *Lomonosov Moscow State University, Chemical Department, Moscow, Russia*

PP-IV-37

Myachina M.A., Gavrilova N.N., Nazarov V.V., Skudin V.V.

Highly Dispersed Catalysts Mo₂C – WC for the Dry Reforming of Methane

D. Mendeleev University of Chemical Technology, Moscow, Russia

PP-IV-38

Nazarkina Y.V., Rusakov V.A., Dronov A.A.

Effect of Anodization and Annealing Regimes on the Photocatalytic Properties of Nanostructured Tungsten Oxide Layers

National Research University of Electronic Technology, Zelenograd, Moscow, Russia

PP-IV-39

Nishchakova A.D.^{1,2}, Asanov I.P.^{1,2}, Bulushev D.A.³, Bulusheva L.G.^{1,2}

Porous Nitrogen-Doped Carbon Materials as Supports for Catalytically Active Ni Nanoparticles for Hydrogen Production from Gas-Phase Formic Acid

1 – *Nikolaev Institute of Inorganic Chemistry SB RAS, Novosibirsk, Russia*

2 – *Novosibirsk State University, Novosibirsk, Russia*

3 – *Boreskov Institute of Catalysis, Novosibirsk, Russia*

PP-IV-40

Ovchinnikova E.V.¹, Ivanov E.A.¹, Chumachenko V.A.¹

Thermodynamic analysis of equilibrium isobutane yields in the isomerization of n-butane fractions of refinery gases

1 – *Boreskov Institute of Catalysis, Novosibirsk, Russia*

PP-IV-41

Klegova A., Kiška T., Pacultová K., Karásková K., Obalová L.

Effect of Cs Content in Co₃O₄ Deposited on the Ceramic Foam Support Catalyst for N₂O Decomposition

Institute of Environmental Technology, VŠB – Technical University of Ostrava, Ostrava, Czech Republic

P-IV-43

Simakova I.L.^{1,2}, Demidova Yu.S.^{1,2}, Devi N.³, Dhepe P.³, Bokade V.³

Hydrogenation of Ethyl Levulinate to γ -Valerolactone over Ir Catalysts

1 – Boreskov Institute of Catalysis, Novosibirsk, Russia

2 – Novosibirsk State University, Novosibirsk, Russia

3 – CSIR-National Chemical Laboratory, Pune, India

PP-IV-44

Golubina E.V.¹, Shilina M.I.¹, Lokteva E.S.¹, Maslakov K.I.¹,

Gurevich S.A.², Kozhevin V.M.², Yavsin D.A.², Rostovshchikova T.N.¹

Low Percent Size-Selected Pd and Pt Catalysts Prepared by Laser Electrodispersion in the CO Oxidation

1 – Lomonosov Moscow State University, Moscow, Russia

2 – Ioffe Physico-Technical Institute of RAS, St. Petersburg, Russia

PP-IV-45

Chernykh M.V., Mikheeva N.N., Mamontov G.V.

Reduction of Nitrocompounds over Ag-CeO₂ Catalysts

Tomsk State University, Tomsk, Russia

PP-IV-46

Saiko A.V.¹, Zaikina O.O.^{1,2}, Sosnin G.A.^{1,2}, Yeletsky P.M.¹, Klimov O.V.¹,

Yakovlev V.A.¹, Noskov A.S.¹

The Use of Dispersed Catalysts in Catalytic Steam Cracking of Vacuum Residue

1 – Boreskov Institute of Catalysis, Novosibirsk, Russia

2 – Novosibirsk State University, Novosibirsk, Russia

PP-IV-48

Savchuk T.^{1,2}, Shtyka O.², Dronov A.¹, Maniukiewicz W.², Gavrilov S.¹,

Maniecki T.²

Styrene Photocatalytic Oxidation over Me (Au, Pt, Pd)/TiO₂-NTs Supported Catalysts

1 – National Research University of Electronic Technology, Moscow, Russia

2 – Lodz University of Technology, Lodz, Poland

PP-IV-49

Shefer K.I.^{1,2}, Kovtunova L.M.^{1,2}, Rogozhnikov V.N.¹, Chetyrin I.A.¹,
Suprun E.A.¹, Stonkus O.A.^{1,2}, Larina T.V.¹

Pt and Rh Catalysts Supported on Alumina and Structured Supports for the Reaction of Partial Oxidation of Hydrocarbons

1 – *Boreskov Institute of Catalysis, Novosibirsk, Russia*

2 – *Novosibirsk State University, Novosibirsk, Russia*

PP-IV-50

Shesterkina A.A., Strekalova A.A., Kirichenko O.A., Redina E.A., Kustov L.M.

Novel Fe-Containing Catalysts for the Selective Hydrogenation of Aldehydes and Nitro-Compounds

Zelinsky Institute of Organic Chemistry, Russian Academy of Sciences, Moscow, Russian Federation

PP-IV-51

Shikina N.V.¹, Gavrilova A.A.¹, Yashnik S.A.¹, Litvak G.S.¹, Khairulin S.R.¹,
Ismagilov Z.R.^{1,2}

Formation Mechanism of Active Phases Based on Mn, Mn-La, Mn-Ce Oxides under Solution Combustion Synthesis

1 – *Boreskov Institute of Catalysis, Novosibirsk, Russia*

2 – *Institute of Coal Chemistry and Chemical Materials Science, Federal Research Center of Coal and Coal Chemistry SB RAS, Kemerovo, Russia*

PP-IV-53

Sinitsin S.A.¹, Polovinkin M.A.¹, Gavrilov Y.A.¹, Danilov E.A.²,
Kostiuchenko V.V.³, Vodoleev V.V.³

Energy-Effective Fe-Mo Catalyst for the Process of Oxidative Dehydrogenation of Methanol to Formaldehyde

1 – *Mendeleev University of Chemical Technology of Russia, Moscow, Russia*

2 – *JSC “Scientific Research Institute of Graphite-Based Structural Materials “NIIgrafit”, Moscow, Russia*

3 – *JSC “Tehmetall-2002”, Kirovgrad, Russia*

PP-IV-55

Smirnova E.M., Shukralieva A.S., Zasyalov G.O., Glotov A.P., Vinokurov V.A.

Benzene Hydrogenation over Ruthenium Catalysts Supported on Aluminosilicate Nanotubes

Gubkin Russian State University of Oil and Gas, Moscow, Russia

PP-IV-56

Konishcheva M.V.^{1,2}, Potemkin D.I.^{1,2}, Snytnikov P.V.^{1,2}, Sobyenin V.A.^{1,2}

From Mechanistic Studies of the Preferential CO Methanation in the Presence of CO₂ to Design of Structured Nickel-Ceria Catalysts

1 – *Borsov Institute of Catalysis, Novosibirsk, Russia*

2 – *Novosibirsk State University, Novosibirsk, Russia*

PP-IV-57

Solomonik I.G., Gorshkov A.S., Gryaznov K.O., Zhukova E.A.,

Ivanov L.A., Perezhogin I.A., Mordkovich V.Z.

Effect of Long-Term Pilot Run on the Properties of Highly Productive Fischer–Tropsch Synthesis Catalyst

Technological Institute for Superhard and Novel Carbon Materials, Moscow, Russia

PP-IV-58

Stolyarova E.A., Klimov O.V., Saiko A.V., Gerasimov E.Y.,

Chetyrin I.A., Noskov A.S.

Influence of the Silica Sol Addition to the Catalytic Activity of CoMoP Hydrotreating Catalysts

Borsov Institute of Catalysis, Novosibirsk, Russia

PP-IV-59

Matus E.V.^{1,2}, Shlyakhtina A.S.², Sukhova O.B.¹, Ismagilov I.Z.¹,

Kerzhentsev M.A.¹, Ismagilov Z.R.^{1,3}

Effect of Composition of Ce_{1-x}Ni_xO_y Catalyst on Their Activity and Stability in Steam/CO₂ Reforming of Methane

1 – *Borsov Institute of Catalysis, Novosibirsk, Russia*

2 – *Novosibirsk State Technical University, Novosibirsk, Russia*

3 – *Institute of Coal Chemistry and Material Science FRC CCC SB RAS, Kemerovo, Russia*

PP-IV-61

Sychev V.V.¹, Baryshnikov S.V.¹, Beregovtsova N.G.¹, Volochaev M.N., Taran O.P.^{1,2}

Levulinic Acid Hydrogenation into γ -Valerolactone over Ru/C Catalysts

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2 – *Kirensky Institute of Physics, SB RAS, FRC KSC SB RAS, Krasnoyarsk, Russia*

3 – *Borekov Institute of Catalysis, Novosibirsk, Russia*

PP-IV-62

Todorova S.¹, Naydenov A.², Velinova R.², Karakirova Y.¹, Kolev H.¹

Catalytic Combustion of Methane over Pd-MeOx-CeO₂/Al₂O₃

(Me= Co or Ni) Catalysts

1 – *Institute of Catalysis, Bulgarian Acad. of Sciences, Sofia, Bulgaria*

2 – *Institute of General and Inorganic Chemistry, Bulgarian Acad. of Sciences, Sofia, Bulgaria*

PP-IV-65

Yanilkin V.V.¹, Nastapova N.V.¹, Nasretdinova G.R.¹, Osin Y.N.²,

Gubaidullin A.T.¹, Ziganshina A.Yu.¹

The Role of Stabilizer in Catalytic Activity in Water Solutions of Ultrasmall Rh, Pd and (Rh + Pd) Nanoparticles Obtained by Mediated Electrosynthesis

1 – *Arbuzov Institute of Organic and Physical Chemistry, FRC Kazan Scientific Center of RAS, Kazan, Russia*

2 – *Kazan Federal University, Interdisciplinary Center “Analytical Microscopy”, Kazan, Russia*

PP-IV-66

Yashnik S.A., Taran O.P., Boltenkov V., Parmon V.N.

Methane Oxidation by H₂O₂ over Different Cu-Species of Cu-ZSM-5 Catalysts

Borekov Institute of Catalysis, Novosibirsk, Russia

PP-IV-67

Yushchenko D.Yu., Simonov P.A., Khlebnikova T.B., Pai Z.P., Bukhtiyarov V.I.

Oxidative Dealkylation of Aminophosphoric Acids in the Presence of Nanostructured Au/C Catalysts

Borekov Institute of Catalysis, Novosibirsk, Russia

PP-IV-68

Zhou X., Vovk E.I., Liu Z., Yang Y.

Active Sites on Nanorod La₂O₃ in Oxidative Coupling of Methane. *In Situ* Online MS and XPS Study

Shanghai Tech University, Shanghai, China

PP-IV-69

Ziyadullaev O.E.¹, Otamukhamedova G.Q.², Samatov S.B.¹,
Abdurakhmanova S.S.¹, Turabdjano S.M.³

Enantioselective Alkynylation of Cyclic Ketones with Phenylacetylene Catalyzed by Lithium Banapholate

1 – *Chirchik State Pedagogical Institute, Tashkent region, Uzbekistan*

2 – *National University of Uzbekistan, Tashkent, Uzbekistan*

3 – *Tashkent State Technical University, Tashkent, Uzbekistan*

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