

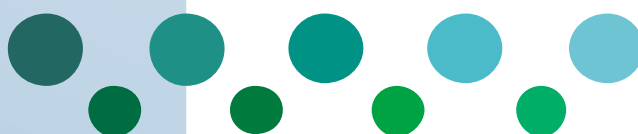
**The 8th International Scientific
School-Conference for
Young Scientists**

CATALYSIS: FROM SCIENCE TO INDUSTRY

**September 30–October 3, 2024
Tomsk State University
Tomsk, Russia**



PROGRAM



8th INTERNATIONAL SCIENTIFIC SCHOOL-CONFERENCE FOR YOUNG SCIENTISTS “CATALYSIS: FROM SCIENCE TO INDUSTRY”

The school-conference became a regular event organized by Tomsk State University on the basis of the Laboratory of Catalytic Research and Department of physical and colloid chemistry of Chemistry Faculty. It is held in order to bring together young scientists and specialists in the field of catalysis and related sciences to disseminate advanced scientific and practical experience, to strengthen relations between catalytic schools in Russia and abroad as well as to form a scientific culture of young researchers.

The theme of the conference covers modern trends in the field of fundamental and applied catalysis featuring the basics of catalyst preparation and production, mechanisms, kinetics, and modeling of chemical reactions, promising catalytic processes and application of catalytic processes in industry. Young scientists will be given a great opportunity to become familiar with research works of leading scientists, present and discuss their research results, define promising trends of scientific research, and establish collaborative relations.

ORGANIZERS

NATIONAL RESEARCH TOMSK STATE UNIVERSITY

- CHEMISTRY FACULTY
 - LABORATORY OF CATALYTIC RESEARCH
 - DEPARTMENT OF PHYSICAL AND COLLOID CHEMISTRY
- STUDENT SCIENTIFIC SOCIETY



National Research
Tomsk
State
University



LCR
TOMSK STATE UNIVERSITY



PARTNERS AND SPONSORS

ENGINEERING CHEMICAL TECHNOLOGY CENTER

SCIENTIFIC AND COMMERCIAL CENTER “LABTEST”



ECTC



The event is held within the framework of a subsidy from the federal budget to higher education organizations to implement the events aimed at supporting student scientific communities.

RSF

Russian Science
Foundation

The School for Young Scientists “New catalysts and catalytic processes to solve the challenges of environmental responsible and resource-saving energy production” organized within a project 19-73-30026 supported by the Russian Science Foundation is held during the 8th International School-Conference for Young Scientists “Catalysis: from Science to Industry”.

INFORMATION PARTNER

JOURNAL “KINETICS AND CATALYSIS”



**KINETICS AND
CATALYSIS**

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SCIENTIFIC PROGRAM

Scientific program of the school-conference consists of 7 plenary and 8 keynote lectures of leading scientists, 2 invited reports as well as oral and poster presentations of young scientists.

THE SCOPE OF THE SCHOOL-CONFERENCE

Catalyst preparation

- Scientific fundamentals of catalyst preparation
- Advanced catalytic materials (micro- and mesoporous materials, hybrid materials, MOFs)
- Modern tendencies in development of catalyst preparation methods

Promising catalytic processes

- Processing of oil and natural gas
- Fine organic synthesis
- Green chemistry. Photocatalysis
- Energy saving and processing of renewable feedstocks. Fuel cells, electrocatalysis

Physical-chemical fundamentals of catalysis

- Kinetics and mechanism of catalytic reactions. Investigation of catalytic properties
- Modern research methods in catalysis. In situ and operando research
- Theoretical modeling of catalytic processes

Industrial implementation of catalytic processes

- Fundamentals of industrial catalyst preparation
- Development of chemical processes and reactors
- Catalyst deactivation and regeneration
- Catalytic process engineering

WORKING LANGUAGE

The working languages of the school-conference are English and Russian.

PUBLICATIONS

All abstracts are published in the school-conference proceedings e-book. An International Standard Book Number (ISBN) is assigned to the e-book.

Authors of selected contributions will be invited to submit full papers to *Kinetics and Catalysis*.

Kinetics and Catalysis is an international peer-reviewed journal that publishes original theoretical and experimental research on homogeneous and heterogeneous catalysis and the mechanisms and kinetics of noncatalytic chemical processes in gaseous, liquid, and solid phases. Other topics are as follows: catalysis stimulated by external actions, such as photochemical, radiation-induced, sonochemical, and mechanochemical catalysis; theoretical and practical aspects of catalyst preparation; physicochemical methods for characterization of catalysts and studying catalytic and noncatalytic processes; adsorption and chemisorption processes in heterogeneous catalysis; poisoning and deactivation of catalysts; quantum chemical calculations in kinetics and catalysis; computer modeling and simulations in kinetics and catalysis. The journal also publishes critical reviews of contemporary research in kinetics and catalysis.

Центр малотоннажной химии

на территории Промышленного парка
Томской области



парк опытно-промышленных химических установок



малотоннажные химические производства



эксплуатационный блок



корпус особо чистой химии для радиоэлектроники



корпус работы с прекурсорами



5

га, площадь проектируемого парка

1

млрд Р, инвестиции в проект



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ИХТЦ

Эффективное решение инжиниринговых задач

для химической промышленности

Пилотирование

ТГУ

Центр малотоннажной химии

Механика

Инжиниринговый химико-технологический центр



продвинутая аналитика



научно-исследовательские работы



сопровождение бизнес-проектов



масштабирование химических технологий



создание и запуск химических производств



создание опытно-промышленных установок



ИХТЦ
МЕХАНИКА



Изготовление уникального комплексного оборудования для химических производств и лабораторий

лабораторные, опытно-промышленные установки, стенды, реакторы, автоклавы, комплектующие и арматура из разных материалов, включая специальные сплавы и стекло, по индивидуальным требованиям заказчика



Разработка собственных технических решений для последующей реализации

КИПиА, отдельные узлы реакторного оборудования и т. п.



Конструкторский отдел и собственное механическое производство



ИХТЦ обеспечивает комплексный процесс внедрения химических технологий

С 2017 года ИХТЦ регулярно входит в тройку лучших инжиниринговых центров России по рейтингу НТИ РФ

150 +

специалистов в команде

40 +

проектов в работе

10 +

малотоннажных производств ежегодно

3

производственные площадки



ИХТЦ
ПИЛОТИРОВАНИЕ



Создание и эксплуатация пилотных установок, строительно-монтажные и пусконаладочные работы



Авторское сопровождение организации химических производств



Подбор оборудования для новых технологических процессов



Оптимизация технологических схем



Масштабирование химических технологий



Timetable (Tomsk Time)
of the 8th International School-Conference for Young Scientists “Catalysis: from Science to Industry”

Monday September 30, 2024		Tuesday October 1, 2024		Wednesday October 2, 2024		Thursday October 3, 2024					
11:00–13:50 Registration Old building of TSU Scientific Library, Lenin Ave. 34a, Tomsk		9:00	PL3 Lokteva		9:00	PL5 Stepanov					
		9:50	KL1 Vasilchenko		9:50	KL3 Yashnik		9:50	PL7 Vedyagin		
		10:20	KL2 Kozlova		10:20	KL4 Golubina		10:40	SP GPN		
		10:50	Coffee break		10:50	Coffee break		10:50	KL7 Lazarev		
		11:15	IO1 Larichev	OP14 Morozova	11:15	OP20 Serebrennikov	OP25 Sokovikov		11:20	KL8 Babina	
		11:30		OP15 Solovyeva	11:30	OP21 Shuvarakova	OP26 Blinov				
		11:45	OP10 Ponizovnaya	OP16 Kharina	11:45	OP22 Taratayko	OP27 Murtazalieva		11:50	IO2 Filina	
		12:00	OP11 Shitsov	OP17 Alekseev	12:00	OP23 Sukhorukov	OP28 L'vova				
		12:15	OP12 Zorina	OP18 Korepanov	12:15	OP24 Yurpalova	OP29 Romanov		12:20	Coffee break/Location change	
		12:30	OP13 Baturu	OP19 Krainyukova	12:30		OP30 Philippov				
13:50	Opening remarks		12:45	Lunch break		12:45	Lunch break		13:00	Excursion Pilot site/Laboratory	
14:10	PL1 Boronin		14:15	PL4 Kondratenko		14:15	PL6 Tabakova		14:20	Location change	
15:00	PL2 Carabineiro		15:05	Technical break		15:05	KL5 Liotta		14:40	Closing remarks	
15:50	SP LABTEST		15:10	Short oral talks		15:35	KL6 Kulinich		15:00	Close-down	
16:05	Coffee break		Poster session (with coffee break)		16:05	Coffee break		<div style="background-color: #e0f0ff; padding: 2px;">Catalyst preparation</div> <div style="background-color: #e0ffe0; padding: 2px;">Physical-chemical fundamentals of catalysis.</div> <div style="background-color: #e0e0e0; padding: 2px;">Promising catalytic processes.</div> <div style="background-color: #ffe0e0; padding: 2px;">Industrial implementation of catalytic processes.</div> <div style="background-color: #ffe0e0; padding: 2px;">PL – Plenary lecture;</div> <div style="background-color: #e0ffe0; padding: 2px;">KL – Keynote lecture;</div> <div style="background-color: #e0ffe0; padding: 2px;">SP – Sponsor/Partner presentation;</div> <div style="background-color: #e0ffe0; padding: 2px;">OP – Oral presentation;</div> <div style="background-color: #e0ffe0; padding: 2px;">IO – Invited oral presentation.</div>			
16:30	OP1 Yurpalov	OP6 Trotsky			16:30	OP31 Fionov					
16:45	OP2 Donskikh	OP7 Timofeev			16:45	OP32 Putanenko					
17:00	OP3 Metalnikova	OP8 Sychev			17:00	OP33 Maltsev					
17:15	OP4 Golubkov	OP9 Morilov			17:15	OP34 Zos'ko					
17:30	OP5 Kotov				17:30	OP35 Lyulyukin					
17:45	Break		17:45	Break							
19:00	Welcome reception		18:00	Close-down		19:00	Banquet				
22:00	Close-down				22:00	Close-down					



Компания «НКЦ «ЛАБТЕСТ» является официальным представителем «Altamira Instruments» и предлагает широкий спектр газо-адсорбционного оборудования.

АДСОРБЦИОННОЕ ОБОРУДОВАНИЕ

для исследования микро- и мезопористых материалов.

- ✓ Анализаторы удельной поверхности и пористости;
- ✓ Анализаторы газовой сорбции под высоким давлением;
- ✓ Анализаторы сорбционной емкости и кривых прорыва.



ИССЛЕДУЕМЫЕ МАТЕРИАЛЫ:

- ✓ Цеолиты
- ✓ Катализаторы
- ✓ Абсорбенты
- ✓ МОКС и др.

ХЕМОСОРБЦИОННОЕ ОБОРУДОВАНИЕ

исследование катализаторов: ТПО/ТПВ/ТПД реакции, импульсное титрование, in-situ определение ИК-спектров десорбции на кислотных/основных центрах.

- ✓ Анализаторы динамической хемосорбции;
- ✓ Лабораторные микрореакторы.



ПРОВЕДЕНИЕ ДЕМОНСТРАЦИОННЫХ АНАЛИЗОВ ВАШИХ ОБРАЗЦОВ В НАШЕЙ ЛАБОРАТОРИИ!

ПОСТАВКА
ОБОРУДОВАНИЕ

ПОДБОР
КОМПЛЕКТУЮЩИХ

МЕТОДИЧЕСКАЯ
ПОДДЕРЖКА

ТЕХНИЧЕСКОЕ
ОБСУЖИВАНИЕ

September 30, 2024, Monday

13:50

Opening remarks

Scientific Library of Tomsk State University, Conference Hall

Plenary session

Chairperson – Prof. Olga V. Vodyankina

Scientific Library of Tomsk State University, Conference Hall

14:10

PL1

Self-oscillating catalytic processes in metal-oxide and metal-carbon systems

Andrei I. Boronin

Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia

15:00

PL2

Gold catalysts for oxidation reactions

Sónia Alexandra Correia Carabineiro, E.N. Kolobova², E.G. Pakrieva³,
A.N. Pestryakov²

¹LAQV-REQUIMTE, Department of Chemistry, NOVA School of Science and Technology, Universidade NOVA de Lisboa, Caparica, Portugal

²Tomsk Polytechnic University, Tomsk, Russia

³Instituto de Nanociencia y Materiales de Aragon (INMA), CSIC-Universidad de Zaragoza, Zaragoza, Spain

15:50

SP

Equipment of the RCC LABTEST company for studying the properties of catalysts by gas adsorption and scanning electron microscopy

Elena Abutkina

RCC LABTEST, Moscow, Russia

16:05

Coffee break

Session 1

Physical-chemical fundamentals of catalysis

Chairperson – Prof. Andrei I. Boronin

Scientific Library of Tomsk State University, Conference Hall

16:30

OP1

Formation of active sites in Mo- and NiMo-catalysts for light alkenes conversion by ex situ EPR spectroscopy

Vyacheslav L. Yurpalov, T.R. Karpova, A.V. Lavrenov, M.A. Moiseenko
Center of New Chemical Technologies BIC, Omsk, Russia

16:45

OP2

XPS study of [Ir(COD)Cl]₂-L-SiO₂ single-site catalysts

Katerina G. Donskikh^{1,2}, L.M. Kovtunova^{1,2}, I.V. Skovpin³, R.I. Kvon²,
A.V. Nartova^{1,2}

¹Novosibirsk State University, Novosibirsk, Russia

²Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia

³International Tomography Center SB RAS, Novosibirsk, Russia

17:00

OP3

A comparison of mixed oxides AgFeO₂ and AgMnO₂: the role of silver surface state in low-temperature catalytic CO oxidation

Vera M. Metalnikova, D.A. Svintsitskiy, S.V. Cherepanova, A.I. Boronin
Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia

September 30, 2024, Monday

- 17:15** **Optimal size of supported ruthenium nanoparticles for glucose hydrogenation**
OP4
Viktor A. Golubkov¹, V.V. Sychev^{1,2}, V.A. Nasluzov¹, Y.N. Zaitseva¹,
A.O. Eremina¹, O.P. Taran^{1,2,3}
¹Institute of Chemistry and Chemical Technology SB RAS, Krasnoyarsk, Russia
²Institute of Non-Ferrous Metals, Siberian Federal University, Krasnoyarsk, Russia
³Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia
- 17:30** **Insight into the mechanism of carbonyl compound isomerization into lactic acid over Ti⁴⁺/Sn⁴⁺-substituted UiO-66**
OP5
Andrey V. Kotov¹, A.V. Fateev^{1,2}, O.V. Vodyankina¹
¹Tomsk State University, Tomsk, Russia
²Tomsk State Pedagogical University, Tomsk, Russia
- 17:45** **Break**
- 19:00** **Welcome reception**
- 22:00** **Close-down**

Session 2

Promising catalytic processes

Chairperson – Prof. Ekaterina S. Lokteva

Scientific Library of Tomsk State University, Small Conference Room

- 16:30** **Polysaccharides valorization over solid acid catalyst; doping of mesoporous silica SBA-15 with Al and Zr to increase acidity**
OP6
Yuriy A. Trotsky¹, A.O. Eremina¹, S.A. Novikova¹, V. V. Sychev^{1,2},
O.P. Taran^{1,2,3}
¹Institute of Chemistry and Chemical Technology SB RAS, Krasnoyarsk, Russia
²Siberian Federal University, Krasnoyarsk, Russia
³Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia
- 16:45** **The role of support acid-base properties on aerobic oxidation of 5-hydroxymethylfurfural over oxide-supported AuPd catalysts**
OP7
Konstantin L. Timofeev, T.S. Kharlamova, O.V. Vodyankina
Tomsk State University, Tomsk, Russia
- 17:00** **A selective design of nanostructured Ru/C catalysts for a complex processing of plant biomass into valuable chemical products**
OP8
Valentin V. Sychev¹, A.V. Miroshnikova¹, A.S. Kazachenko¹,
V.E. Tarabanko¹, O.P. Taran^{1,2}
¹Institute of Chemistry and Chemical Technology, Krasnoyarsk, Russia
²Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia
- 17:15** **100-xPdxCu@UiO-66-NH₂ and 100-xPdxAu@UiO-66-NH₂ catalysts for selective 5-hydroxymethylfurfural reduction**
OP9
Denis P. Morilov, K.L. Timofeev, T.S. Kharlamova
Tomsk State University, Tomsk, Russia
- 17:30** **Break**

September 30, 2024, Monday

19:00 **Welcome reception**

22:00 **Close-down**

October 1, 2024, Tuesday

Plenary session

Chairperson – Prof. Alexander G. Stepanov
Scientific Library of Tomsk State University, Conference Hall

- 09:00**
PL3 **Templated porous systems for catalytic oxidation and reduction processes**
Ekaterina S. Lokteva, E.V. Golubina, I.Yu. Kaplin
Lomonosov Moscow State University, Moscow, Russia
- 09:50**
KL1 **Oxoanionic complexes of platinum group metals: solution speciation, isolation and utilization for catalysts preparation**
Danila B. Vasilchenko
Nikolaev Institute of Inorganic Chemistry SB RAS, Novosibirsk, Russia
- 10:20**
KL2 **Nanostructured photocatalysts based on g-C₃N₄ for visible light-induced CO₂ reduction**
A. Kurenkova¹, D. Vasilchenko^{1,2}, A. Saraev¹, Ekaterina A. Kozlova¹
¹Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia
²Nikolaev Institute of Inorganic Chemistry SB RAS, Novosibirsk, Russia
- 10:50** **Coffee break**

Session 3

Catalyst preparation

Chairperson – Dr. Danila B. Vasilchenko
Scientific Library of Tomsk State University, Conference Hall

- 11:15**
IO1 **In-situ SAXS study of Pt-contained solutions as catalytic precursors**
Yurii V. Larichev
Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia
- 11:45**
OP10 **Ag- and Pt-containing catalysts based on mixed CeO₂-Fe₂O₃ oxides for deep toluene oxidation**
Diana A. Ponizovnaya, A.S. Savel'eva, G.V. Mamontov
Tomsk State University, Tomsk, Russia
- 12:00**
OP11 **Synthesis and investigation of NiO-CuO/Al(OH)₃ catalysts in the catalytic pyrolysis of methane**
Danil M. Shvtsov^{1,2}, Y.I. Bauman¹, G.B. Veselov¹, E.V. Shelepova¹,
A.B. Ayupov¹, Y.V. Shubin^{2,3}
¹Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia
²Novosibirsk State University, Novosibirsk, Russia
³Nikolaev Institute of Inorganic Chemistry SB RAS, Novosibirsk, Russia
- 12:15**
OP12 **Dry reforming of methane over Ni/CeO₂-SnO₂: effect of the Ni addition method**
Anna A. Zorina, I.Yu. Kaplin, E.S. Lokteva, A.N. Kharlanov
Lomonosov Moscow State University, Moscow, Russia

October 1, 2024, Tuesday

12:30 OP13 CuO-MnO_x-CeO₂-based catalysts for CO oxidation: Effect of preparation method

N.V. Dorofeeva, A.S. Savel'eva, Mark A. Baturo, M.V. Grabchenko, M.A. Salaev
Tomsk State University, Tomsk, Russia

12:45 Group photo, Lunch break

Session 4

Promising catalytic processes

Chairperson – Prof. Ekaterina A. Kozlova

Scientific Library of Tomsk State University, Small Conference Room

11:15 OP14 Photoactive composites BiVO₄/TiO₂-N and Bi₂WO₆/TiO₂-N in catalytic degradation of benzene

Maria E. Morozova^{1,2}, M.N. Lyulyukin¹

¹Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia

²Novosibirsk State University, Novosibirsk, Russia

11:30 OP15 Photoactive self-cleaning materials for inactivation and destruction of biological contaminants

Maria I. Solovyeva^{1,2}, E.S. Zhuravlev³, G.A. Stepanov³, M.V. Sergeeva⁴, Y.N. Kozlova³, A.V. Bardasheva³, V.V. Morozova³, V.A. Richter³, D.V. Kozlov^{1,2}, D.S. Selishchev^{1,2}

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²Novosibirsk State University, Novosibirsk, Russia

³Institute of Chemical Biology and Fundamental Medicine SB RAS, Novosibirsk, Russia

⁴Smorodintsev Research Institute of Influenza, Saint-Petersburg, Russia

11:45 OP16 Platinum-modified g-C₃N₄/TiO₂ photocatalysts for H₂ evolution from glucose aqueous solutions

Sofiya N. Kharina, A.Yu. Kurenkova, E.A. Kozlova

Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia

12:00 OP17 Modification of g-C₃N₄ and TiO₂ with Ti₃C₂X MXenes for photocatalytic CO₂ reduction

Roman F. Alekseev^{1,2}, A.Yu. Kurenkova¹, K.O. Potapenko¹, D.B. Vasilchenko³, E.A. Kozlova¹

¹Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia

²Novosibirsk State University, Novosibirsk, Russia

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

12:15 OP18 Laser synthesis and photocatalytic properties of bismuth oxide-halides

Viacheslav E. Korepanov, O.A. Reutova, V.A. Svetlichnyi

Tomsk State University, Tomsk, Russia

12:30 OP19 The role of photogenerated active particles in the selective oxidation of 5-hydroxymethylfurfural

Mariia A. Krainyukova, E.D. Fakhrutdinova, T.S. Kharlamova, V.A. Svetlichnyi

Tomsk State University, Tomsk, Russia

12:45 Group photo, Lunch break

October 1, 2024, Tuesday

Plenary session

Chairperson – Prof. Andrey I. Boronin
Scientific Library of Tomsk State University, Conference Hall

**14:15
PL4** **Fundamentals for targeted design of catalysts efficiently producing propene via propane dehydrogenation**

Evgenii V. Kondratenko
Leibniz Institute for Catalysis, Rostock, Germany

15:05 **Technical break**

Session 5

Short oral talks

Chairperson – Dr. Anna S. Savel'eva
Scientific Library of Tomsk State University, Conference Hall

**15:10
SO1** **New approaches for the synthesis of M/C_g-type structures (M=Ni, Co, Cu) via microwave irradiation and their application in the electrocatalytic water splitting**

Vladislav S. Kashansky^{1,2}, A.V. Sukhov^{1,2}, A.V. Ivanov³, A.M. Kuchkaev^{1,2}, T.B. Tkachenko³, D.G Yakhvarov^{1,2}

¹Alexander Butlerov Institute of Chemistry, Kazan Federal University, Kazan, Russia

²Arbuzov Institute of Organic and Physical Chemistry, FRC Kazan Scientific Center RAS, Kazan, Russia

³Kemerovo State University, Kemerovo, Russia

**15:15
SO2** **Bi-containing composite photocatalysts prepared by sol-gel method**

Roman A. Vergilesov, Y.A. Belik, O.V. Vodyankina
Tomsk State University, Tomsk, Russia

**15:20
SO3** **Alcohols as hydrogen donors in catalytic conversion processes of heteroatomic compounds of petroleum fractions**

Nikolay S. Nesterov, A.A. Philippov, A.A. Salomatina, O.V. Klimov, O.N. Martyanov

Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia

**15:25
SO4** **Surfactant-assisted sulfuric acid catalyzed motor fuel alkylation approach**

Andrey V. Nikityonok, D.P. Ivanov, D.E. Babushkin, A.O. Kuzmin
Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia

**15:30
SO5** **Optimization of process conditions for tri-reforming coal mine methane into hydrogen-containing gas**

E.V. Matus, Elizaveta N. Kovalenko, A.V. Salnikov, M.A. Kerzhentsev, S.R. Khairulin

Federal Research Center of Coal and Coal Chemistry SB RAS, Kemerovo, Russia

**15:35
SO6** **Phase composition and structural characteristics of Ce_{1-x}Fe_xO_{2-δ} (0.25 ≤ x ≤ 0.75) mixed oxides and silver catalysts on the basis thereof**

Svetlana N. Bukalova, M.V. Grabchenko, G.V. Mamontov
Tomsk State University, Tomsk, Russia

October 1, 2024, Tuesday

- 15:40** **Effect of Zr/Mn ratio in MnO_x-ZrO₂ catalysts for CO oxidation**
S07 Elena E. Yashchenko, M.V. Grabchenko, M.A. Salaev
Tomsk State University, Tomsk, Russia
- 15:45** **The influence of potassium on the catalytic properties of platinum-**
S08 **titanium catalysts for the selective oxidation of ammonia**
Ivan Yu. Ovsyuk^{1,2}, L.S. Kibis², D.A. Svintsitskiy², O.A. Stonkus²,
T.Yu. Kardash², A.V. Romanenko²
¹Novosibirsk State University, Russia
²Borekov Institute of Catalysis SB RAS, Novosibirsk, Russia
- 15:50** **Design of catalysts based on CeO₂-Fe₂O₃@SBA-15 for deep oxidation**
S09 **of volatile organic compounds**
Natalia N. Mikheeva, G.V. Mamontov
Tomsk State University, Tomsk, Russia
- 15:55** **MOFs composites for adsorption organic compounds**
S010 Polina A. Matskan, G.V. Mamontov
Tomsk State University, Tomsk, Russia
- 16:00** **Transformations of Pd/NHC based catalytic systems under reaction**
S011 **conditions: theoretical and experimental approaches**
Ekaterina Patil, J. Burykina, A. Kostyukovich, V. Ananikov
Zelinsky Institute of Organic Chemistry RAS, Moscow, Russia
- 16:05** **The effect of acid catalysts on kinetic parameters of condensation of**
S012 **glyoxalic acid with urea**
Polina K. Krivolapenko, V.P. Tuguldurova
Tomsk State University, Tomsk, Russia
- 16:10**
- Poster Session**
(with coffee break)
Scientific Library of Tomsk State University, Pavilion
- 18:00** **Close-down**

October 2, 2024, Wednesday

Plenary session

Chairperson – Prof. Aleksey A. Vedyagin
Scientific Library of Tomsk State University, Conference Hall

- 09:00**
PL5 **Solid state NMR spectroscopy for studies of activation and conversion of light alkanes on metal-modified zeolites**
Alexander G. Stepanov
Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia
- 09:50**
KL3 **Structure–RedOx–DeNO_x activity relationships for Cu-ZSM-5 catalysts**
Svetlana A. Yashnik
Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia
- 10:20**
KL4 **The role of graphene-like carbon layer and metal core in catalytic activity of metal-carbon nanocomposites**
Elena V. Golubina, E.S. Lokteva
Lomonosov Moscow State University, Moscow, Russia
- 10:50** **Coffee break**

Session 6

Catalyst preparation

Chairperson – Prof. Elena V. Golubina
Scientific Library of Tomsk State University, Conference Hall

- 11:15**
OP20 **Catalytic systems based on SAPO-11 nanoscale molecular sieves – new opportunities for the isodeparafinization of fuels and oils**
Dmitry V. Serebrennikov¹, R.E. Yakovenko², I.N. Zubkov², D.O. Bagdanova¹, A.R. Zabiroy¹, G.T. Bagautdinova³, R.Z. Kuvatova¹, B.I. Kutepov¹, M.R. Agliullin¹
¹Institute Petrochemistry and Catalysis UFRC RAS, Ufa, Russia
²Platov South-Russian State Polytechnic University (NPI), Novocherkassk, Russia
³Ufa State Petroleum Technical University, Ufa, Russia
- 11:30**
OP21 **Synthesis of sulfated Al₂O₃ aerogels and study of their catalytic activity in ethanol dehydration**
Ekaterina I. Shuvarakova¹, A.F. Bedilo¹, A.E. Rznitsky², A.S. Miliushina^{1,2}
¹Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia
²Novosibirsk State Technical University, Novosibirsk, Russia
- 11:45**
OP22 **On notable effect of graphene oxide surface on catalytic activity of Ag/graphene oxide catalysts in nitroarene reduction**
Aleksey V. Taratayko, G.V. Mamontov
Tomsk State University, Tomsk, Russia
- 12:00**
OP23 **The hydrolysis of sodium borohydride over solvent-free synthesized cobalt-containing catalysts**
Dmitry A. Sukhorukov, K.A. Dmitruk, S.A. Mukha, O.V. Komova, V.I. Simagina, O.V. Netskina
Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia

October 2, 2024, Wednesday

- 12:15** **Modifying effect of cobalt in Pd-Co/ α -Al₂O₃ catalysts for selective**
OP24 **hydrogenation of acetylene to ethylene**
Daria V. Yurpalova¹, T.N. Afonassenko¹, Z.S. Vinokurov², I.P. Prosvirin³,
A.V. Bukhtiyarov³, M.V. Trenikhin¹
¹Center of New Chemical Technologies BIC SB RAS, Omsk, Russia
²Synchrotron Radiation Facility SKIF, Borekov Institute of Catalysis SB RAS,
Koltsovo, Russia
³Borekov Institute of Catalysis SB RAS, Novosibirsk, Russia

12:30 **Lunch break**

Session 7

Physical-chemical fundamentals of catalysis –

Promising catalytic processes

Chairperson – Dr. Svetlana A. Yashnik

Scientific Library of Tomsk State University, Small Conference Room

- 11:15** **Delafossite-type Ag₂CuMnO₄ catalyst for low-temperature CO oxidation**
OP25 Nikolai A. Sokovikov, D.A. Svintsitskiy, E.M. Slavinskaya, S.V. Cherepanova,
A.I. Boronin
Borekov Institute of Catalysis SB RAS, Novosibirsk, Russia
- 11:30** **Detailing the mechanism of the SCR-CO reaction on Cu-OMS-2**
OP26 **catalysts by in-situ DRIFTS**
Egor D. Blinov, V.A. Svetlichniy, O.V. Vodyankina
Tomsk State University, Tomsk, Russia
- 11:45** **Ag-Cu/CeO₂-ZrO₂-SnO₂ catalysts for CO and soot oxidation**
OP27 Anna M. Murtazalieva, M.V. Chernykh, M.V. Grabchenko, G.V. Mamontov,
M.A. Salaev
Tomsk State University, Tomsk, Russia
- 12:00** **Soot oxidation and SCR-NO_x on Ag/Ce_{0.5}Mn_{0.5}O_x/cordierite catalyst**
OP28 Ekaterina S. L'vova¹, T.S. Kharlamova¹, M.V. Grabchenko¹,
A.G. Golubovskaya¹, A.N. Salanov², O.V. Vodyankina¹
¹Tomsk State University, Tomsk, Russia
²Borekov Institute of Catalysis SB RAS, Novosibirsk, Russia
- 12:15** **Development of advanced methods for recycling polymer waste in**
OP29 **anhydrous reducing media**
Alexandr S. Romanov, N.S. Nesterov, O.N. Martyanov
Borekov Institute of Catalysis SB RAS, Novosibirsk, Russia
- 12:30** **Cyclohexanone synthesis via phenol and cyclohexanol transfer**
OP30 **hydrogenation**
Alexey A. Philippov, N.S. Nesterov, O.N. Martyanov
Borekov Institute of Catalysis SB RAS, Novosibirsk, Russia
- 12:45** **Lunch break**

October 2, 2024, Wednesday

Plenary session

Chairperson – Prof. Ekaterina S. Lokteva
Scientific Library of Tomsk State University, Conference Hall

- 14:15 PL6 Gold catalysts for hydrogen production via water-gas shift reaction: insight into role of support**
Tatyana Tabakova
Institute of Catalysis, Bulgarian Academy of Sciences, Sofia, Bulgaria
- 15:05 KL5 Ni and Ni-Ru catalysts over LaMnO₃ for methane decomposition to H₂ and catalyst regeneration by CO₂**
E. La Greca^{1,2}, V. La Parola¹, G. Pantaleo¹, L. Consentino^{1,2}, M. Gruttadauria², R. Fiorenza³, S. Scirè³, Leonarda F. Liotta¹
¹Institute for the Study of Nanostructured Materials (ISMN), (Italian) National Research Council (CNR), Palermo, Italy.
²STEBICEF Department Ed. 17, University of Palermo, Palermo, Italy
³Department of Chemical Science, University of Catania, Catania, Italy
- 15:35 KL6 New catalyst for efficient hydrogen evolution reaction based on Ag-doped Cu nanosheet arrays**
L.J. Kong¹, Sergei A. Kulinich², X.W. Du¹
¹Tianjin University, Tianjin, PR China
²Tokai University, Hiratsuka, Japan
- 16:05 Coffee break**

Session 8

Promising catalytic processes

Chairperson – Prof. Aleksey A. Vedyagin
Scientific Library of Tomsk State University, Conference Hall

- 16:30 OP31 High-performance Ni/Al₂O₃-(Zr+Ce)O₂ catalysts for syngas production via ethanol dry reforming**
Yuri A. Fionov, K.S. Khlusova, S.G. Chuklina, S.M. Semenova, S.V. Khaibullin, A.I. Zhukova
RUDN University, Moscow, Russia
- 16:45 OP32 Ni-based catalysts on LaCeO_x supports modified with Pr₆O₁₁ for dry reforming of methane**
Pavel K. Putanenko, N.V. Dorofeeva, M.V. Grabchenko, O.V. Vodyankina
Tomsk State University, Tomsk, Russia
- 17:00 OP33 Modified iron-based catalysts for producing valuable chemical products**
Gordey I. Maltsev^{1,2}, E.V. Dokuchits², T.P. Minyukova²
¹Novosibirsk State University, Novosibirsk, Russia
²Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia

October 2, 2024, Wednesday

- 17:15** **Enhanced photoelectrochemical activity of titanium dioxide nanotubes modified by Cu_xO for water splitting**
OP34
- Nikolay A. Zos'ko¹, T.A. Kenova¹, A.S. Aleksandrovsky², O.P. Taran¹
¹Institute of Chemistry and Chemical Technology, Krasnoyarsk, Russia
²L.V. Kirensky Institute of Physics, Krasnoyarsk, Russia
- 17:30** **Synthesis and investigation of Cu-containing deep oxidation catalysts for a fluidized bed based on spherical $\gamma\text{-Al}_2\text{O}_3$ strengthened with magnesium**
OP35
- Arseniy P. Lyulyukin^{1,2}, Y.V. Dubinin¹, V.A. Yakovlev¹
¹Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia
²Novosibirsk State University, Novosibirsk, Russia
- 17:45** **Break**
- 19:00** **Banquet**
- 22:00** **Close-down**

October 3, 2024, Thursday

Plenary session

Chairperson – Prof. Olga V. Vodyankina
Scientific Library of Tomsk State University, Conference Hall

- 09:50**
PL7 **Revealing the scale-up problems in the production of Pd-containing catalysts**
Aleksey A. Vedyagin
CJSC “Nizhegorodskiy Sorbenty”, Nizhny Novgorod, Russia
- 10:40**
SP **Company presentation**
Alexander D. Meleshkin
Gazprom Neft
- 10:50**
KL7 **The hard way from pure science to manufacturing scaling up**
Mikhail A. Lazarev^{1,2}
¹Orgkhim Biochemical Holding, CJSC, Nizhny Novgorod, Russia
²Research Institute of Chemistry of Nizhny Novgorod State University, Nizhny Novgorod, Russia
- 11:20**
KL8 **How catalysts are developed in SIBUR’s R&D and what is needed to implement the development in industry**
Anastasia A. Babina
«SIBUR-INNOVATIONS» LLC, PJSC «SIBUR Holding»
- 11:50**
IO2 **Producing cyclopentane from dicyclopentadiene**
Mariia P. Filina^{1,2}
¹Tomsk State University, Tomsk, Russia
²Engineering Chemical Technology Centre, Tomsk, Russia
- 12:20** **Coffee break/Location change**
- 13:00**

Excursion
(Pilot site/Laboratory)
- 14:20** **Location change**
- 14:40**

Closing remarks
Scientific Library of Tomsk State University, Conference Hall
- 15:00** **Close-down**

Poster presentations

October 1, 2024, Tuesday

Scientific Library of Tomsk State University, Pavilion

- PP1** **New approaches for the synthesis of M/C_g-type structures (M=Ni, Co, Cu) via microwave irradiation and their application in the electrocatalytic water splitting**
V.S. Kashansky^{1,2}, A.V. Sukhov^{1,2}, A.V. Ivanov³, A.M. Kuchkaev^{1,2},
T.B. Tkachenko³, D.G. Yakhvarov^{1,2}
¹Alexander Butlerov Institute of Chemistry, Kazan Federal University, Kazan, Russia
²Arbuzov Institute of Organic and Physical Chemistry, FRC Kazan Scientific Center of RAS, Kazan, Russia
³Kemerovo State University, Kemerovo, Russia
- PP2** **Pd, Ag and Cu catalysts supported on biochar, prepared from pine nutshell, and its catalytic properties in 4-nitrophenol reduction**
M.V. Kozhina, G.V. Mamontov
Tomsk State University, Tomsk, Russia
- PP3** **The effect of synthesis methods on catalytic properties of Ag/FeO_x catalysts in 4 nitrophenol reduction**
T.A. Kuznetsov, M.V. Kozhina, A.V. Taratayko, G.V. Mamontov
Tomsk State University, Tomsk, Russia
- PP4** **Synthesis and study of UiO-66/PET and UiO-66/cotton composite sorbents**
V.V. Lobanova, G.V. Mamontov
Tomsk State University, Tomsk, Russia
- PP5** **MOFs composites for adsorption organic compounds**
P.A. Matskan, G.V. Mamontov
Tomsk State University, Tomsk, Russia
- PP6** **Titanium-modified Zr-UiO-66 metal-organic framework as a catalyst for cascade conversion of dihydroxyacetone to lactic acid**
S.N. Nikulaichev, V.V. Torbina, O.V. Vodyankina
Tomsk State University, Tomsk, Russia
- PP7** **Design of catalysts based on CeO₂-Fe₂O₃@SBA-15 for deep oxidation of volatile organic compounds**
N.N. Mikheeva, G.V. Mamontov
Tomsk State University, Tomsk, Russia
- PP8** **Catalytic properties of silver nanoparticles immobilized in polymethacrylate matrix**
S.K. Bragina
Tomsk State University, Tomsk, Russia
- PP9** **The influence of potassium on the catalytic properties of platinum-titanium catalysts for the selective oxidation of ammonia**
I.Yu. Ovsyuk^{1,2}, L.S. Kibis², D.A. Svintsitskiy², O.A. Stonkus²,
T.Yu. Kardash², A.V. Romanenko²
¹Novosibirsk State University, Russia
²Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia

Poster presentations

- PP10** Investigation of the peroxidase-like activity of silver and gold nanoparticles immobilized in a polymethacrylate matrix in the oxidation reaction of 3,3',5,5'-tetramethylbenzidine by H₂O₂
D.A. Kuznetsova, O.A. Bazhenova
Tomsk State University, Tomsk, Russia
- PP11** The influence of nickel content in the process of carbon dioxide methanation on glass-fiber catalysts with a secondary layer
Ia.A. Mikhailov¹, A.V. Matigorov¹, S.A. Lopatin^{1,2}, A.N. Zagoruiko^{1,2}, A.V. Elyshev¹
¹University of Tyumen, Tyumen, Russia
²Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia
- PP12** Designing ZrO₂-MnO_x-based catalysts for CO oxidation
Ya.E. Salnikov, N.N. Mikheeva, G.V. Mamontov, M.V. Grabchenko, M.A. Salaev
Tomsk State University, Tomsk, Russia
- PP13** Phase composition and structural characteristics of Ce_{1-x}Fe_xO_{2-δ} (0.25 ≤ x ≤ 0.75) mixed oxides and silver catalysts on the basis thereof
S.N. Bukalova, M.V. Grabchenko, G.V. Mamontov
Tomsk State University, Tomsk, Russia
- PP14** Ag-containing catalysts for selective NO_x reduction
E.E. Eremina, E.S. L'vova, O.V. Vodyankina
Tomsk State University, Tomsk, Russia
- PP15** The effect of acid catalysts on kinetic parameters of condensation of glyoxalic acid with urea
P.K. Krivolapenko, V.P. Tuguldurova
Tomsk State University, Tomsk, Russia
- PP16** Effect of Zr/Mn ratio in MnO_x-ZrO₂ catalysts for CO oxidation
E.E. Yashchenko, M.V. Grabchenko, M.A. Salaev
Tomsk State University, Tomsk, Russia
- PP17** Hydroisomerization of high C₁₆₊ paraffins on granulated Pt-containing molecular sites SAPO-11 and ZSM-23
V.I. Zaripov¹, D.V. Serebrennikov¹, R.E. Yakovenko², I.N. Zubkov², O.S. Travkina¹, A.I. Malunov¹, A.R. Zabirotov¹, G.T. Bagautdinova³, A.N. Khazipova¹, B.I. Kutepov¹, M.R. Agliullin¹
¹Institute Petrochemistry and Catalysis UFRC RAS, Ufa, Russia
²Platov South-Russian State Polytechnic University (NPI), Novocherkassk, Russia
³Ufa State Petroleum Technical University, Ufa, Russia
- PP18** Development of carriers based on γ-Al₂O₃ and ZSM-5 for Ni-Mo catalysts for the hydrotreating of waste cooking oil
D.I. Lashchenko^{1,2}, R.G. Kukushkin², K.S. Kovalevskaya², A.P. Lyulyukin^{1,2}, V.A. Yakovlev²
¹Novosibirsk State University, Novosibirsk, Russia
²Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia

Poster presentations

- PP19 Optimization of process conditions for tri-reforming coal mine methane into hydrogen-containing gas**
E.V. Matus, E.N. Kovalenko, A.V. Salnikov, M.A. Kerzhentsev, S.R. Khairulin
Federal Research Center of Coal and Coal Chemistry SB RAS, Kemerovo, Russia
- PP20 Surfactant-assisted sulfuric acid catalyzed motor fuel alkylation approach**
A.V. Nikityonok, D.P. Ivanov, D.E. Babushkin, A.O. Kuzmin
Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia
- PP21 Alcohols as hydrogen donors in catalytic conversion processes of heteroatomic compounds of petroleum fractions**
N.S. Nesterov, A.A. Philippov, A.A. Salomatina, O.V. Klimov, O.N. Martyanov
Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia
- PP22 Transformations of Pd/NHC based catalytic systems under reaction conditions: theoretical and experimental approaches**
E. Patil, J. Burykina, A. Kostyukovich, V. Ananikov
Zelinsky Institute of Organic Chemistry RAS, Moscow, Russia
- PP23 Ferrite nanoparticles $\text{Fe}_x\text{Co}_{3-x}\text{O}_4$ are active catalysts for the organic dyes degradation**
O.S. Ivanova^{1,2}, I.S. Edelman^{1,2}, A.E. Sokolov^{1,2}, E.S. Svetlitsky¹, A.M. Popova²
¹Kirensky Institute of Physics, Federal Research Center KSC SB RAS, Krasnoyarsk, Russia
²Siberian Federal University, Krasnoyarsk, Russia
- PP24 Study of selective photocatalytic oxidation of 5-HMF: search for optimal experimental conditions**
V.E. Korepanov, O.A. Reutova, A.G. Golubovskaya, T.S. Kharlamova, V.A. Svetlichnyi
Tomsk State University, Tomsk, Russia
- PP25 Features of Pt modification of dark titanium dioxide prepared via pulsed laser ablation to obtain highly efficient photocatalysts**
E.V. Zinina, E.D. Fakhrutdinova
Tomsk State University, Tomsk, Russia
- PP26 Photocatalytic activity of bismuth silicate heterostructures $\text{Bi}_2\text{SiO}_5/\text{Bi}_{12}\text{SiO}_{20}$**
A.G. Golubovskaya, V.A. Svetlichnyi
Tomsk State University, Tomsk, Russia
- PP27 Bi-containing composite photocatalysts prepared by sol-gel method**
R.A. Vergilessov, Y.A. Belik, O.V. Vodyankina
Tomsk State University, Tomsk, Russia
- PP28 Photocatalytic properties of bismuth molybdate obtained by pulsed laser ablation in water**
A.V. Volokitina, A.G. Golubovskaya V.A. Svetlichnyi, T.S. Kharlamova
Tomsk State University, Tomsk, Russia

Poster presentations

PP29 A nanostructured ceramic involving intense luminescence for fast photodissociation of gas molecules

N. Ouarab¹, N. Redjda¹, L. Benharrat¹, S. Mezghiche¹, A. Cheriet¹,
M. Aboumustapha², Y. Si-Ahmed¹, S. Bouachma¹, Z. Charfi¹, K. Derkaoui¹

¹Research Center in Semiconductors Technology for Energetic-(CRTSE), Algeria

²Scientific and Technical Research Center in Physico-Chemical Analysis,
Bousmail, Tipaza, Algeria