

XVIII INTERNATIONAL CONFERENCE
«PROSPECTS OF FUNDAMENTAL SCIENCES
DEVELOPMENT»

April 27-30, 2021

Tomsk, Russia

PROGRAM

<http://conf-prfn.org/>

**SECTIONS AND SCIENTIFIC DIRECTIONS OF THE
CONFERENCE**

SECTION 1. PHYSICS: condensed state physics, surface physics, physics of accelerated equipment, hydrogen energetic, geophysics, modeling of the physical processes.

SECTION 2. CHEMISTRY: synthesis and properties of functional materials, physical and chemical methods of research materials, nanomaterials, ecology, organic synthesis, catalysis and petroleum chemistry

SECTION 3. MATHEMATICS: algebra, geometry and analysis; mathematical modeling, visualization and data analysis; equations of mathematical physics; computational mathematics, machine learning and pattern recognition

SECTION 4. BIOLOGY AND FUNDAMENTAL MEDICINE: anatomy and physiology (including pathological states); immunology; neurology and psychiatry; cell biology and histology; genetics; biochemistry and molecular biology; microbiology and virology; biophysics; biotechnologies; bioengineering; pharmacology and pharmacognosy;

cybernetics and bioinformatics; biomaterials: in vitro and in vivo studies.

SECTION 5. ECONOMICS AND MANAGEMENT: economics 4.0: digital, institutional and industrial economics; innovation policy and entrepreneurship; taxation; finance; money circulation and credit; accounting, analysis and audit; management, labor economics; mathematical and data methods in economics, management and business; development of state and municipal management system; international economic relations, economic security

Section 6. CONSTRUCTION AND ARCHITECTURE: construction technology; building materials, products and structures; nanotechnologies in construction; methodology of architectural design; theory and history of architecture; restoration and reconstruction of architectural heritage; design of architectural environment

SECTION7. IT-TECHNOLOGIES AND ELECTRONICS: Intelligent control systems; automated information processing and management systems; information Security; nanoelectronics; obtaining and researching nanomaterials; optoelectronics and nanophotonics; plasma emission electronics; intelligent power electronics; microwave electronics; radiolocation systems, television, radio communications, radiometry and wave propagation of radio-frequency and acoustic ranges; pulse and radio frequency measurements.

SCHEDULE

April 27, 2021

9.00-9.30 Registration of participants

9.30-9.50 Opening

Conference Hall, Scientific Library of TSU, Lenin Ave. 34a, entrance from the side of the stop "Library of TSU"

Link https://youtu.be/uNG_6utRczA

9.50- 10.30 Ivanov Sergey Nikolaevich, Executive Director, Member of the Board of Directors of EFKO Company

Lecture "Food of the Future and Healthy Innovations: Challenges for Fundamental Science"

14.00 Sections start

April 28, 2021

Section work

April 29, 2021

Section work

April 30, 2021

13.00-16.00 Closing of the conference. Awarding the authors of the best reports, Conference Hall, TSU Scientific Library, Lenin Ave. 34a

ORGANIZING COMMITTEE

- Voronova G. A. Ph.D. in Chemistry, Associate Professor, Deputy Director of the Institute of Smart Materials and Technology, TSU, Tomsk, Chairman
- Semenov M. E. Ph.D. in Physical and Mathematical Sciences, TPU, Tomsk, Vice-Chairman
- Babkina O. V. Ph.D. in Chemistry, Expert of the Infrastructure Center 'Healthnet' , NTI
- Ananina M. A. Bachelor Student, IEM TSU, Tomsk
- Andriychuk L. N. Engineer at the Office of Innovation and Commercialization, TUSUR, Tomsk
- Bakeev I. Yu. Junior Research Fellow at the Laboratory of Plasma Electronics, TUSUR, Tomsk
- Bart A. A. Ph.D. in Physical and Mathematical Sciences, Leading Engineer at the Training Laboratory of the Department of Computational Mathematics and Computer Modeling, TSU, Tomsk
- Bogdanov A. L. Ph.D. in Engineering, Associate Professor, Head of the Bachelor's program 'Business Analytics', IEM, TSU
- Bozhko I. A. Ph.D. in Physical and Mathematical Sciences, Associate Professor, TPU
- Vagner A. R. Vice-Rector, Head of Polytechnic Institute, FEFU
- Verevkina I. D. Senior Lecturer, TSUAB, Tomsk
- Vichugov V. N. Ph.D. in Engineering, Tomsk
- German M. V. Ph.D. in Economics, Head of the Office of

- Godymchuk A. IU. Master's and Postgraduate Programs, IEM TSU, Tomsk
Ph.D. in Engineering, Associate Professor, TPU, Tomsk
- Grinkevich A. M. Ph.D. in Economics, Associate Professor, Head of the Specialist's Program 'Economic Security', IEM TSU, Tomsk
- Syusyukina V. A. Specialist in Educational and Methodological Work, TSU, Tomsk
- Zenin A. A. Ph.D. in Engineering, Associate Professor at the Department of Physics, TUSUR, Tomsk
- Zolotova A.V. Master Student, IEM TSU, Tomsk
- Epimakhova E V Ph.D. in Biology, Research Fellow at the Department of the Addictive States of Mental Health Research Institute, Tomsk NRMC, Tomsk
- Evtina A. A. Research Laboratory Assistant at the Laboratory of Oncovirology of Tomsk Cancer Research Institute, Tomsk NRMC, Laboratory Assistant at LTKMB TSU, Tomsk
- Izaak T. I. Research Laboratory Assistant at the Laboratory of Oncovirology of Tomsk Cancer Research Institute, Tomsk NRMC, Laboratory Assistant at LTKMB TSU, Tomsk
- Kazakov A.V. Ph.D. in Chemistry, Associate Professor, TSU, Tomsk
- Kazantseva L. A. Ph.D. in Engineering, Associate Professor at the Department of Physics, TUSUR, Tomsk
- Karakchieva N. I. Junior Research Fellow at the Laboratory 'Nanomaterials and Nanotechnologies', TSUAB, Engineer at the Laboratory of Physics of Surface Phenomena, TSPMS SB RAS, Tomsk
- Ilina T. G.

- Ph.D. in Chemistry, TSU, Tomsk
- Kasymov D. P. Ph.D. in Economics, Associate Professor, Head of the Department of Finance and Accounting, IEM TSU, Tomsk
- Knyazeva E. M. Ph.D. in Physical and Mathematical Sciences, Associate Professor at the Faculty of Mechanics and Mathematics, TSU, Tomsk
- Kritsky O. L. Ph.D. in Chemistry, Associate Professor, TPU, Tomsk
- Kruchinin D. V. Ph.D. in Physical and Mathematical Sciences, Associate Professor, TPU, Tomsk
- Kubritskaya S. A. Ph.D. in Physical and Mathematical Sciences, Dean of the Faculty of Security, TUSUR, Tomsk
- Kudiyakov A. I. Senior Lecturer at the Faculty of Foreign Languages, TSU, Tomsk
- Laptev R. S. D.Sc. in Engineering, Professor, International Scientific and Educational Center 'Construction Materials'
- Leader A. M. Ph.D. in Engineering, TPU, Tomsk
- Lotov V. A. D.Sc. in Engineering, Professor, TPU, Tomsk
- Lytkina D. N. D.Sc. in Engineering, Professor, TSUAB, Tomsk
- Lyamina G. V. Research Engineer, TSU, Tomsk
- Magaev O. V. Ph.D. in Chemistry, Associate Professor, TPU, Tomsk
- Makoveeva V. V. Ph.D. in Chemistry, Head of the
- Malkov V. S.

- Laboratory for Catalytic Research, TSU,
Tomsk
- Markov A.V. Ph.D. in Economics, Deputy Director for
Academic Affairs, IEM TSU, Tomsk
- Misyutina O. V. Ph.D. in Chemistry, Head of the
Laboratory for Organic Synthesis, TSU,
Tomsk
- Larionova I. V. Ph.D. in Medicine, Research Fellow at the
Research Institute of Medical Genetics,
Tomsk NRMС RAS, Tomsk
- Nikonenko E. L. Director of the Career Center, IEM TSU,
Tomsk
- Osipova T. Yu. Ph.D. in Medicine, Tomsk Cancer
Research Institute, Tomsk NRMС, Senior
Research Fellow at the Laboratory for
Perin A. S. Translational Cell and Molecular
Biomedicine TSU, Tomsk
- Zorina N. V. Ph.D. in Physical and Mathematical
Sciences, Associate Professor, TSUAB,
Pchelintsev E. A. Tomsk
- Pyatina E. A. Ph.D. in Economics, Associate Professor,
IEM TSU, Tomsk
- Rybalkina O. Yu. Ph.D. in Engineering, Associate Professor
at the Department of Microwave and
Quantum Radio Engineering, TUSUR,
Tomsk
- Selyunina L. A. Ph.D. in Philology, Associate Professor,
TSU, Tomsk
- Ph.D. in Physical and Mathematical
Sciences, Associate Professor at the
Faculty of Mechanics and Mathematics,

- Sitnikova E. V. TSU, Tomsk
- Solovyov M. A. Assistant of the Department of Finance and Accounting, IEM TSU, Tomsk
- Steshenko A. B. Ph.D. in Biology, Research Fellow at Goldberg Research Institute of Pharmacology and Regenerative Medicine, Tomsk NRMC, .Associate Professor at the Department of Biology and Genetics, SSMU, Tomsk
- Stoyak Yu. A. Ph.D. in Chemistry, Associate Professor, TSU, Tomsk
- Tkachenko L. I. Ph.D. in Architecture, Associate Professor, TSUAB, Tomsk
- Francina E. V. Ph.D. in Engineering, Vice-Rector for Academic Affairs, TPU, Tomsk
- Khasanov O. L. Ph.D. in Engineering, Associate Professor at the Department of Construction Materials, TSUAB, Tomsk
- Chernyak M. E. Ph.D. in Architecture, Associate Professor, TSUAB, Tomsk
- Chikov M. V. Ph.D. in Economics, Head of the Master's Program 'Finance and Accounting in Organizations', IEM TSU, Tomsk
- Chistyakova N. V. Ph.D. in Engineering, Director of the Scientific Career Center, TPU, Tomsk
- Shapovalova E. G. D.Sc. in Engineering, Professor, TPU, Tomsk
- Churina E. G. Deputy Director for Educational Work, IEM TSU, Tomsk
- Shinkeev M. L. Ph.D. in Economics, Deputy Director for

- Shchegoleva A. Research, IEM TSU, Tomsk
A. Ph.D. in Physical and Mathematical Sciences, TPU, Tomsk
- Yurchenkova E. Specialist in Educational and
A. Methodological Work, TSU, Tomsk
D.Sc. in Medicine, Professor at the Department of Organic Chemistry, TSU, Professor at the Department of Pathophysiology, SSMU, Tomsk
- Yaroslavtseva A. Pathophysiology, SSMU, Tomsk
E. Ph.D. in Physical and Mathematical Sciences, TPU, Tomsk
- Dykhova A. S. Junior Research Fellow at the Laboratory of Biology of Tumor Progression, Cancer Research Institute, Tomsk NRMC, Tomsk
Ph.D. in Chemistry, Leading Engineer of the Department of Postgraduate and Doctoral Studies, TUSUR, Tomsk
Ph.D. in Philology, Director of the Center for Public Relations, IEM TSU, Tomsk
- Technician of the 1st Category at the Department of Metrology, TUSUR, Tomsk

SECTION 1. PHYSICS: condensed state physics, surface physics, physics of accelerated equipment, hydrogen energetic, geophysics, modeling of the physical processes.

The sessions will be held in the physical building of the TPU (Lenin av. 43) 210 room.

ONLINE CONNECTION TO THE SESSION:

Zoom connection:

[https://us02web.zoom.us/j/81630700921?](https://us02web.zoom.us/j/81630700921?pwd=azhIZlI4MkNsdGhkM3ZTVdNuejNqZz09)

[pwd=azhIZlI4MkNsdGhkM3ZTVdNuejNqZz09](https://us02web.zoom.us/j/81630700921?pwd=azhIZlI4MkNsdGhkM3ZTVdNuejNqZz09)

Identifier: 816 3070 0921

Access code: L7QPQL

Part 3 (Process Modeling) - will be held in the physical building of the TPU (Lenin av. 43) 215 aud.

ONLINE CONNECTION TO THE SESSION of Part 3:

<https://tpu.webex.com/meet/svyatkin>

27 April, 2021

14.00 - 17.00 Part 1 aud. 210, Physical building of the TPU (Lenin av. 43)

Commission chairman: Ph.D Kashkarov E.B.

Cochairman: Ph.D Sidelev D.V.

PLENARY LECTURE

Prof. Dr. Nahum Travitzky

Erlangen - Nurnberg university, Germany

Additive manufacturing based on ceramic materials.

OP-1- Roman R. Elman, Kurdyumov Nikita. Tomsk polytechnic university, Tomsk

CHARACTERISATION OF HYDROGEN FORMATION AND ACCUMULATION IN COMPOSITES BASED ON MAGNESIUM AND CARBON NANOMATERIALS AND OBTAINED BY USING HIGH-ENERGY PLANETARY BALL MILL

Scientific adviser: PhD Viktor N. Kudiyarov

OP-1- Nikita V. Vostrov, Dmitry V. Averkin,
Dmitry V. Vishnevetskii. Tver State University, Tver
Development of cold extrusion systems for viscous
mediums in additive manufacturing
Scientific adviser: Prof. Alexander V. Solnyshkin

OP-1-1 Sinyavskiy Sergey , Surmeneva Maria. Tomsk
Polytechnic University, Tomsk
Synthesis and study of the physical properties of magnetite
nanoparticles
Scientific adviser: PhD Surmenev Roman

OP-1-2 Viacheslav V. Eruntsov, Konstantin A. Prosolov,
Margarita A. Khimich. Tomsk Polytechnic University, Tomsk
Influence of Methods for Modification of Metal Surface on
Topology and Residual Stress
Scientific adviser: Prof. Yurii P. Sharkeev

OP-1-3 Sergey O. Kasparyan, Sergey O. Kazantsev,
Sergey N. Kulkov. Tomsk state university, г. Томск
INFLUENCE OF COLD PLASMA TREATMENT ON THE CHANGE
OF THE SZP OF Al₂O₃
Scientific adviser: Prof. Sergey N. Kulkov

OP-1-4 Pavel V. Maryin. Tomsk Polytechnic University ,
Tomsk
PLLA scaffolds modification by DC magnetron sputtering of
a titanium target in a mixture of working gases
Scientific adviser: PhD Sergei I. Tverdokhlebov

OP-1-5 Ekaterina A. Kazantseva,
Komarova Ekaterina Gennad'evna. National Research
Tomsk State University, Tomsk
Study of adhesion and cohesion of 3d-porous calcium
phosphate coatings deposited by ultrasound-assisted micro-
arc oxidation method
Scientific adviser: Prof. Yurii P. Sharkeev

OP-1-6 Sergey E. Ruchkin, Alexey V. Pirozhkov. Tomsk Polytechnic University, Tomsk
Protective multilayer crn/cr coating for zirconium alloys
Scientific adviser: PhD Dmitry V. Sidelev

OP-1-7 Igor O. Akimchenko, Gleb E. Dubinenko, Vlada I. Li. Tomsk polytechnic university, Tomsk
Surface modification of products based on polyester etherketone by high frequency magnetron sputtering
Scientific adviser: PhD Sergei I. Tverdokhlebov

OP-1-8 Vlada I. Li, Igor O. Akimchenko, Gleb E. Dubinenko. Tomsk Polytechnic University, Tomsk
Formation conditions of bioactive coatings by RF magnetron sputtering on PEEK
Scientific adviser: PhD Sergey I. Tverdokhlebov

OP-1-9 Anastasiya P. Volkova, Maria A. Surmeneva, Irina Y. Grubova. Tomsk Polytechnic University, Tomsk
Study of surface modification of ti-nb-zr-ta alloy by a pulsed electron beam
Scientific adviser: PhD Maria A. Surmeneva

OP-1-10 Grenadyorov Alexander. Institute of High Current Electronics, Siberian Branch, Russian Academy of Sciences, Tomsk
Anticorrosion properties of silicon-carbon films

OP-1-11 Pirozhkov Alexey , Ruchkin Sergey. Tomsk Polytechnic University, Tomsk
Structural and phase changes in multilayer chromium-based coatings during high-temperature oxidation in air
Scientific adviser: PhD Syrtanov Maksim

OP-1-12 Arina A. Shishelova, Kirill M. Dubovikov, Marina A. Kovaleva. Tomsk State University, Tomsk
Influence of a nitrogen gas medium on the structure, fatigue strength and biocompatibility of porous TiNi alloys
Scientific adviser: PhD Ekaterina S. Marchenko

OP-1-13 Alexander S. Mitulinsky, Alexey V. Horobry. Tomsk Polytechnic University, Tomsk
Gas-phase growth of diamond monocrystals in the plasma of an abnormal glow discharge
Scientific adviser: PhD Stepan A. Linnik

Coffee break

17.00 – 19.00 Part 2 aud. 210, Physical building of the TPU (Lenin av. 43)

Commission chairman: Ph.D Syrtanov M.S.

Cochairman: Ph.D Krynitzin M.G.

OP-1-14 Iakhin Albert. Tomsk Polytechnic University, Tomsk
The influence of the electronic beam welding parameters on the weld structure in titanium parts obtained by traditional and additive methods
Scientific adviser: Prof. Alexey V. Panin

OP-1-15 Veronika R. Utyaganova, Andrey V. Filippov, Nikolay N. Shamarin. Institute of Strength Physics and Materials Science SB RAS, Tomsk
Analysis of AA7075/AA5356 gradient transition zone produced by electron-beam additive technology
Scientific adviser: Prof. Nikolay L. Savchenko

OP-1-16 Aleksandr O. Panfilov, Evgeny O. Knyazhev, Anastasiya V. Gusarova. Institute of strength physics and materials science SB RAS, Tomsk
Regularities of formation polymetallic materials by additive electron beam technology
Scientific adviser: PhD Andrey V. Chumaevskii

OP-1-17 Mark A. Kruglyakov. Tomsk Polytechnic University, Tomsk
Study of structural-phase state and mechanical properties of titanium Ti-6Al-4V alloy, obtained by electron-beam melting
Scientific adviser: PhD Ekaterina N. Stepanova

OP-1-18 Evgeny O. Knyazhev, Aleksandr O. Panfilov, Anastasiya V. Gusarova. Institute of strength physics and materials science SB RAS, Tomsk
Regularities of frictional stir processing of additive-obtained materials using tools of different configurations
Scientific adviser: PhD Andrey V. Chumaevskii

OP-1-19 Ekaterina S. Khoroshko, Nikolay N. Shamarin, Andrey V. Filippov. Institute of Strength Physics and Materials Science of SB RAS, Tomsk
Structure of bronze systems CU-AL and CU-AL-SI printed by electron beam additive manufacturing
Scientific adviser: Prof. Evgeny A. Kolubaev

OP-1-21 Kseniya S. Osipovich. Institute for Physics of Strength and Material Science, Tomsk
The influence of alloying elements of stainless steel AISI 321 on the formation of the interfacial of a Fe-Cu bimetallic sample produced by wire-feed electron beam additive manufacturing
Scientific adviser: Prof. Evgeny A. Kolubaev

OP-1-22 Ivan V. Zakharevich, Kseniya S. Osipovich, Sergey Y. Nikonov. Tomsk polytechnic university, Tomsk
Regularities of large products manufactured products from C11000 copper produced by wire-feed electron beam additive manufacturing
Scientific adviser: PhD Andrey V. Chumaevskii

OP-1-24 Ekaterina V. Abdulmenova, Mikhail V. Rumyantsev. Institute of Strength Physics and Materials Science of Siberian Branch of Russian Academy of Sciences, Tomsk
The effect of mechanical treatment of powder on the structure and phase composition of hard alloys
Scientific adviser: Prof. Sergei N. Kulkov

OP-1-25 Ekaterina V. Abdulmenova. Institute of Strength Physics and Materials Science of Siberian Branch of Russian Academy of Sciences, Tomsk
Effect of hydrogen on titanium nickelide powder grinding

Scientific adviser: Prof. Sergei N. Kulkov

OP-1-26 Ekaterina V. Abdulmenova, Irina N. Sevostyanova, Tatyana Y. Sablina. Institute of Strength Physics and Materials Science of Siberian Branch Russian Academy of Sciences, Tomsk

Study of deformation relief on the surface of cemented steels - tungsten carbide - iron-manganese steel during axial compression

Scientific adviser: Prof. Sergei N. Kulkov

OP-1-27 Maria I. Kaftaranova. Tomsk state university, Tomsk
Martensitic transformations in alloys based on titanium nickelide TiNi-Ti-Ni and TiNi-Ti-Co obtained by diffusion sintering

OP-1-28 Aleksandra V. Nikolayeva, Natalia S. Pushilina, Anton D. Teresov. Tomsk Polytechnic University, Tomsk
Investigation of the effect of surface modification on the properties of titanium alloy Ti - 6Al - 4V, manufactured by electron beam melting

Scientific adviser: PhD Natalia S. Pushilina

OP-1-29 Dmitrii A. Tkachev, Ivan A. Belchikov. Tomsk State University, Tomsk

Mechanical treatment of the initial powder and the influence of powder microstructure on the flowability of the thermoplastic slip casting suspension and on the properties of sintered alumina ceramic

Scientific adviser: Prof. Sergei N. Kulkov

27 April, 2021

16.30 – 18.00 Part 3 aud. 215, Physical building of the TPU (Lenin av. 43)

Commission chairman: Dr. Bleyher G.A.

Cochairman: Ph.D Svyatkin L.A.

OP-1-30 Polina P. Smygalina. Tomsk State University, Tomsk

Influence of boundary conditions on temperature distribution in medium with microwave heating
Scientific adviser: Prof. Grigory E. Dunaevskiy

OP-1-31 Akhmetshin R. Linar. Tomsk State University, Tomsk
Influence of relative parameters of the metamaterial structure on its mechanical behavior
Scientific adviser: Prof. Smolin Y. Igor

OP-1-32 Maxim O. Enkov, Pavlovna O. Maria. Tomsk State University, Tomsk
Study of combustion characteristics of mixed compositions with low excess oxidizer coefficient
Scientific adviser: PhD Tatiana I. Gorbenko

OP-1-33 Roman R. Turubaev, Alexander V. Shvab. Tomsk State University, Tomsk
Numerical study of gas aerodynamics at the interaction of two swirled counter flows
Scientific adviser: Prof. Alexander V. Shvab

OP-1-34 Anna A. Lapshina. National Research Tomsk State University, Tomsk
Numerical study of the mechanical behaviour of porous fluid-saturated biological tissues under uniaxial compression
Scientific adviser: Prof. Evgeny V. Shilko

OP-1-35 Vladimir P. Vinarskiy. Tomsk State University, Tomsk
Growth modelling of two-dimensional film
Scientific adviser: PhD Kirill A. Lozovoy

OP-1-36 Andrey V. Chupashev, Anton Y. Sammel. Tomsk State University, Tomsk
The calculation of potential motion range of conical model in water
Scientific adviser: PhD Viktor V. Burkin

OP-1-37 Zhang Hongru. Tomsk Polytechnic University, Tomsk
Research and modeling of hydrogen thermal desorption from Ti, Zr, Pd, Ni

OP-1-38 Ma Xiaole. Tomsk Polytechnic University, Tomsk
Research and modeling of thermal gas evolution of titanium and nickel
Scientific adviser: Prof. Tyurin Y.I.

OP-1-39 Ekaterina V. Anikina. South Ural State University, Chelyabinsk
Molecular hydrogen adsorption on low-dimensional carbon nanomaterials
Scientific adviser: Prof. Valery P. Beskachko

OP-1-40 Sergey O. Ognev, Leonid A. Svyatkin. Tomsk Polytechnic University, Tomsk
Diffusion barriers for a hydrogen atom near the section between Zr/Nb metal layers: first principle calculations
Scientific adviser: PhD Roman S. Laptev

OP-1-41 Ekaterina D. Severyuhina. National Research Tomsk Polytechnic University, Tomsk
Electron density distribution of silver-palladium-hydrogen system
Scientific adviser: PhD Leonid A. Svyatkin

OP-1-42 Darya V. Terentyeva, Leonid A. Svyatkin. Tomsk Polytechnic University, Tomsk
Features of the interaction of helium with a vacancy in alpha-zirconium: first principle calculations
Scientific adviser: PhD Roman S. Laptev

OP-1-43 Evgeniy K. Petrov. National Research Tomsk State University, Tomsk
Jahn-Teller effect in intrinsic magnetic topological insulators
Scientific adviser: PhD Tatiana V. Menshchikova

OP-1-44 Vyazovskaya Alexandra. National Research Tomsk State University, Tomsk

Effect of spin-orbit interaction on the surface electronic structure of the ReY_2Si_2 compounds, where RE - rare earth element and Y - a transition or noble metal

Scientific adviser: PhD Otrokov Mikhail

28 April, 2021

10.20 - 13.00 Part 4 aud. 210, Physical building of the TPU (Lenin av. 43)

Commission chairman: Dr. Nikitenkov N.N.

Cochairman: Ph.D Laptev R.S.

OP-1-45 Kseniya V. Almaeva. Tomsk State University, Tomsk

Features of the deformed microstructure of ferritic-martensitic steel EP-823 after high-temperature thermomechanical treatment

Scientific adviser: Prof. Igor Y. Litovchenko

OP-1-45 Sergey G. Anikeev, Nadezhda V. Artyukhova, Mamazakirov Oybek. Tomsk State University, Tomsk

The use of backscattered electrons to study structural features the complex composition of the tinimo-based alloy
Scientific adviser: Prof. Eduardovich G. Victor

OP-1-47 Artem N. ev, Timofei P. Tolmachev. Tomsk State University of Architecture and Building, Tomsk

Fractographic study of Ni_3Ge and Ni_3Al single crystals after deformation in Bridgman anvils

Scientific adviser: Prof. Yulia V. eva

OP-1-48 D'yachenko Filipp Anatol'evich, Asiya A. Atovullaeva. Institute of Strength Physics and Materials Science SB RAS, Tomsk

The investigation of the deformation behavior of the surface layers of TiNi alloy depending on the shape of the indenter's tip

Scientific adviser: Prof. Ludmila L. Meisner

OP-1-49 Asiya A. Atovullaeva,
D'yachenko Filipp Anatol'evich. Tomsk State University,
Shymkent

The morphology and topography of the Ti-Ni-Ta AND Ti-Ni-Ta-Si-based surface alloys synthesized on the NiTi-substrates

Scientific adviser: Prof. Ludmila L. Meisner

OP-1-50 Anastasia O. Khovanova. Tomsk polytechnic university, Tomsk

Influence of hydrogen on formation of the ultra-grain structure in the titanium alloy VT16

OP-1-51 Alexey A. Grishankov, Pan Menghua, Ji Xinyu.
Tomsk Polytechnic University, Novokuznetsk

Analysis and processing of AFM images of anodic aluminum oxide

Scientific adviser: PhD Gulnara A. Voronova

OP-1-52 Artem R. Dobrovolskii, Andrey V. Chumaevskii,
Anastasiya V. Gusarova. Tomsk polytechnic university,
Tomsk

Friction stir treatment of aluminum-magnesium alloy amg6bm with the introduction of copper and copper-based alloy powders during processing

Scientific adviser: PhD Anna P. Zykova

OP-1-53 Elena A. Zagibalova, Valentina A. Moskvina. Tomsk Polytechnic University, Tomsk

The effect of ion-plasma treatment temperature on phase composition of nitrided layers in austenitic stainless steel

Scientific adviser: Prof. ELENA G. ASTAFUROVA

OP-1-54 Danila V. Indoitu, Aleksandr V. Sudarikov,
Artem R. Dobrovolskii. Tomsk polytechnic university, Tomsk
Regularities of frictional stir processing treatment of casting alloy AlSi12

Scientific adviser: PhD Andrey V. Chumaevskii

OP-1-55 Evgenij D. Kuzminov. Tomsk Polytechnic University, Tomsk

Influence of number and thickness of layers in Ti-Al-Ta-N/Ti-Al-N multilayer coatings on their mechanical and tribological characteristics

Scientific adviser: Prof. Artur R. Shugurov

OP-1-56 Lomygin Anton, Seimek Krzysztof. Tomsk Polytechnic University, Tomsk

Characteristics of the annihilation of positrons in nanosized metal coatings ZR/NB

Scientific adviser: PhD Roman Laptev

OP-1-58 Yulia R. Mingazova, Elizaveta P. Sedanova. Tomsk Polytechnic University, Tomsk

Preparation of gradient composites from preceramic papers based on the MAX-phase Ti_3SiC_2

Scientific adviser: Egor B. Kashkarov

OP-1-59 Ksenia G. Perfilieva, Anna S. Usanina. Tomsk state university, Tomsk

The effect of temperature difference between the particle and medium on the hydrodynamic drag coefficient

Scientific adviser: Prof. Vladimir A. Arkhipov

OP-1-60 Pavel P. Tkachenko, Svetlana S. Kropotova, Nikita E. Shlegel. Tomsk Polytechnic University, Tomsk

INFLUENCE OF LIQUID TEMPERATURE ON SINGLE DROPLETS COLLISIONS

Scientific adviser: Prof. Pavel A. Strizhak

Coffee break

28 April, 2021

13.00 – 16.30 Part 5 aud. 210, Physical building of the TPU (Lenin av. 43)

Commission chairman: Ph.D Pushilina N.S.

Cochairman: Ph.D Stepanova E.N.

PLENARY LECTURE

Prof. Dr. Yaroslav Filinchuk

Catholic University of Louvain, Belgium

Diffraction gives the answer to all questions: structure, thermodynamics, and kinetics of gas adsorption from synchrotron experiments.

OP-1-61 Andrey E. Zhdanov, Natalia S. Pushilina, Yegor B. Kashkarov. National Research Tomsk Polytechnic University, Tomsk

Effect of SiC fiber reinforcement of Ti₃Al(Si)C₂-based laminates obtained by spark plasma sintering of pre-ceramic papers

Scientific adviser: PhD Maxim S. Syrtanov

OP-1-62 Dmitriy G. Krotkevich. Tomsk polytechnic university, Tomsk

High-temperature mechanical tests of Ti₃Al(Si)C₂-based composites obtained by spark plasma sintering of preceramic papers

Scientific adviser: PhD Egor B. Kashkarov

OP-1-63 Alisa V. Nikonenko, Popova Natalya Anatol'evna, Elena L. Nikonenko. Tomsk State University of Control Systems and Radioelectronics, Tomsk

Grain structure and substructure of ufg-ni after equal channel angular pressing was researched

Scientific adviser: Prof. Solov'eva Y.V

OP-1-64 Alisa V. Nikonenko, Natalia A. Popova, Elena L. Nikonenko. Tomsk State University of Control Systems and Radioelectronics, Tomsk

Influence of the dose of implantation with aluminum ions on the grain size of the surface layer of submicrocrystalline titanium

OP-1-65 Svetlana Y. Timoshevskaya,

Ekaterina Y. Gudimova. Tomsk State University, Tomsk

Phase composition and corrosion properties of oxide nanocomposite layers synthesized by the electron-beam method on the surface of a TiNi alloy
Scientific adviser: Prof. Lyudmila L. Meisner

OP-1-66 Aida B. Tokhmetova. Tomsk State University, Tomsk
Study of the deformation behavior of stress-induced martensite aged Ni₄₉Fe₁₈Ga₂₇Co₆ single crystals
Scientific adviser: Prof. Elena Y. Panchenko

OP-1-67 Stanislav A. Trifonov. Tomsk State University, Tomsk
The dislocation annihilation rate Influence on the misoriented substructure formation in f.c.c.- metals

OP-1-68 Nadezhda V. Artyukhova, Sergey G. Anikeev, Mamazakirov Oubek. National Research Tomsk State University, Tomsk
Phase transformations in the reaction system Ti - Ni - MO
Scientific adviser: Prof. Eduardovich G. Victor

OP-1-69 Alexander S. Garin, Ekaterina S. Marchenko, Gulsharat A. Baigonakova. Tomsk State University, Tomsk
Structure and cytocompatibility of the surface of titanium nickelide alloys
Scientific adviser: PhD Anatoly A. Klopotov

OP-1-70 Svetlana A. Ermakova, Alexander A. Eliseev. Institute of Strength Physics and Materials Science SB RAS, Tomsk
Friction stir welding of Ti-Al alloys with ultrasonic impact
Scientific adviser: Prof. Evgeny A. Kolubaev

OP-1-71 Maria V. Zherdeva, Ekaterina E. Timofeeva. Tomsk State University, Tomsk
Influence of the two-stage aging regimes on the effect of shape memory and superelasticity in high nickel single crystals TiNi
Scientific adviser: Prof. Elena Y. Panchenko

OP-1-72 Konstantin S. Rogaev, Aleksey D. Sidorov, Evgeniy Y. Stepanov. Research Institute of Applied Mathematics and Mechanics of Tomsk State University, Tomsk

Experimental and theoretical investigation of the high-density propellants combustion

Scientific adviser: Prof. Aleksandr N. Ishchenko

OP-1-73 Aigerim A. Kazakbaeva. National Research Tomsk State University, Bochum

Influence of the fault orientation on the propagation of slow deformation fronts

Scientific adviser: Prof. Igor Y. Smolin

OP-1-74 Maria P. Kozadaeva, Dmitry A. Khrapov. Tomsk Polytechnic University, Tomsk

Powder removal from three-dimensional cellular gyroid structure using ultrasonic vibration

Scientific adviser: PhD Maria A. Surmeneva

OP-1-75 Ayan Z. Akhmetov. Tomsk State University, Tomsk

Analysis of the state of stress and strain of Yakutsk-Vilyui large igneous province along the geological profile "Kimberlit-1981"

Scientific adviser: Prof. Igor Y. Smolin

OP-1-76 Dmitrii A. Tkachev, Yanis Y. Verkhoshanskiy. Tomsk State University, Tomsk

Granulated glass-clay composite for use in the hydraulic fraction technology

Scientific adviser: Prof. Sergei N. Kulkov

OP-1-77 Cherkasov Nikita. Tomsk State University of Architecture and Building, Tomsk

Defect in CU-AL and CU-MN solid solutions. Stacking fault energy

Coffee break

28 April, 2021

17.00 – 19.30 Part 6 aud. 210, Physical building of the TPU
(Lenin av. 43)

Commission chairman: Ph.D Kudiyarov V.N.

Cochairman: Ph.D Anikeev S.G.

OP-1-78 Polina N. Kononenko, Yuliya Z. Vasilyeva,
Alexander Y. Pak. Tomsk Polytechnic University, Tomsk
Phase composition analysis of product synthesized in arc
reactor using molybdenum-carbon-nitrogen system
Scientific adviser: PhD Alexander Y. Pak

OP-1-79 Ivan O. Korobeynikov, Anatolevna R. Irinal. Tomsk
State University of Architecture and Building, Tomsk
The role of the size factor in the formation of phases in the
Al-Ti system
Scientific adviser: Prof. Yriy. Sergeevich Sarkisov

OP-1-81 Mikhno Anastasiia, Panchenko Marina. National
Research Tomsk Polytechnic University, Tomsk
The effect of the microstructure on hydrogen embrittlement
in high-nitrogen chromium-manganese steel
Scientific adviser: Prof. Astafurova Elena

OP-1-82 Semyon V. Ustyuzhanin. National Research Tomsk
Polytechnic University, Tomsk
Structure of ceramics based on boron carbide after high-
speed thermal treatment
Scientific adviser: Prof. Yuri F. Ivanov

OP-1-83 Kovalyova Marina , Shishelova Arina,
Garin Alexander. Tomsk State University, Tomsk
Viscoelastic behavior of superelastic wire and metal knitted
mesh from titanium nickelide alloy
Scientific adviser: PhD Baigonakova Gulsharat

OP-1-84 Irina D. Kurlevskaya, Aida B. Tokhmetova. Tomsk
State University, Tomsk

Two-way shape memory effect in stress-induced martensite aged ferromagnetic single crystals
Scientific adviser: Prof. Elena Y. Panchenko

OP-1-85 Valeria V. Linnik, Ksenia V. Almaeva. Tomsk State University, Tomsk
The effect of high-temperature thermomechanical treatment on the microstructure and mechanical properties of ferritic-martensitic steel EP-823
Scientific adviser: Prof. Igor Y. Litovchenko

OP-1-86 Daniil V. Mitrofanov, Alexey A. Zakharov. North-Caucasus Federal University, Stavropol
Study of the luminescent properties of core-shell structures based on ZnO and ZnS
Scientific adviser: PhD Evgeniy A. Bondarenko

OP-1-87 Alisa V. Nikonenko, Natalia A. Popova, Elena L. Nikonenko. Tomsk State University of Control Systems and Radioelectronics, Tomsk
Structure and phase changes in a heatresistant alloy nickel based with rhenium
Scientific adviser: PhD Elena L. Nikonenko

OP-1-88 Solov'ev, Yulia V. eva. Tomsk State University of Architecture and Building, Tomsk
Comparative study of dislocation substructures transformations in pure Ni, CU-12AT%AL and Ni3Ge single crystals with [001] deformation axis at 293K
Scientific adviser: Prof. Vladimir A. Starenchenko

OP-1-89 Aleksandr V. Sudarikov, Artem R. Dobrovolskii, Danila V. Indoitu. Tomsk polytechnic university, Tomsk
Friction stir processing of aluminum-magnesium alloy by tools with different pin configurations
Scientific adviser: PhD Andrey V. Chumaevskii

OP-1-90 Eleonora I. Yahushonite, Anna S. Eftifeeva. Tomsk State University, Tomsk

Stabilization of martensite in quenched and aged single crystals of conial alloy

Scientific adviser: Prof. Elena Y. Panchenko

OP-1-91 Ilya D. Fatkullin, Anton I. Tagiltsev. Tomsk State University , Tomsk

The effect of stress-induced martensite aging in tension and compression on B2-B19' martensitic transformation in Ni_{50.3}Ti_{32.2}Hf_{17.5} high-temperature shape memory alloy

Scientific adviser: Prof. Elena Y. Panchenko

OP-1-92 Artem M. Ustinov, Zaguljaev Dmitrij Valer'evich.

Tomsk State University of Architecture and Building, Tomsk
Structure and properties of silumine irradiated by a pulse electron bea

Scientific adviser: Prof. Klopotov Anatolij Anatol'evich

OP-1-93 Alexey N. Musaev, Oleg S. Tolkachev, Xi Honghui.
Tomsk Polytechnic University, Tomsk

Influence of spark plasma pre-sintering on denitrification of Y-TZP ceramics

Scientific adviser: Prof. Oleg L. Khasanov

OP-1-94 Xi Honghui, Oleg S. Tolkachev, Alexey N. Musaev.
Tomsk Polytechnic University, Tomsk

Influence of pre-sintering on densification of Y-TZP ceramic

Scientific adviser: Prof. Oleg L. Khasanov

OP-1-96 Alihan I. Amirov, Aleksandr A. Eliseev. Institute of
strength physics and materiel science, Tomsk

Wear of ZhS6U Nickel Superalloy Tool in FSP on
Commercially Pure Titanium

Scientific adviser: Prof. Evgeniy A. Kolubaev

29 April, 2021

10.20 – 13.00 Part 7 aud. 210, Physical building of the TPU
(Lenin av. 43)

Commission chairman: Dr. Tuyrin Yu.Yu.

Cochairman: Ph.D Sypchenko V.S.

OP-1-97 Kurdyumov Nikita, Elman Roman. Tomsk Polytechnic University, Tomsk
Influence of grinding parameters in a planetary ball mill on the kinetics of hydrogen sorption and desorption in magnesium-based alloys with the addition of metall-organic frame structures
Scientific adviser: PhD Kudiyarov Viktor

OP-1-98 Anna V. Ilchuk, Vladimir D. Paygin. Tomsk Polytechnic University, Tomsk
Synthesis, luminescent and thermal characteristics of YAG ceramics doped with different types of RE-ions
Scientific adviser: PhD Damir T. Valiev

OP-1-99 Viktoriya D. Moskalenko, Tatyana N. Shematilo, Kirill V. Dorozhkin. Tomsk state university, Tomsk
Polymer composite materials based on BaTiO for use in terahertz technology
Scientific adviser: PhD Alexander V. Badin

OP-1-100 Svetlana S. Kropotova. Tomsk Polytechnic University, Tomsk
Influence of properties of forest combustible materials on thermokinetic characteristics of pyrolysis and oxidation
Scientific adviser: Prof. Pavel A. Strizhak

OP-1-101 Susanna A. Kerimbekova, Roman S. Volkov. Tomsk Polytechnic University, Tomsk
Diagnostics of impurities in liquid droplets using optical methods
Scientific adviser: Prof. Pavel A. Strizhak

OP-1-102 Ekaterina O. Filippova, Anna D. Zhuravleva, Nina M. Ivanova. Tomsk Polytechnic University, Tomsk (Tomskaya Oblast')
Influence of atmospheric pressure plasma on visible light transmission coefficient change in polycaprolactone films
Scientific adviser: Prof. Urii U. Kruchkov

OP-1-103 Darya S. Flusova, Daniil K. Chumakov. National Research Tomsk Polytechnic University, Tomsk
The mass spectrometric analysis of residual gases in pulsed accelerator vacuum chamber
Scientific adviser: PhD Gennadiy N. Dudkin

OP-1-104 Fedorovich Z. Oleg. Tomsk State University of Control Systems and Radioelectronics, Tomsk
The radiative recombination scheme in view of a large number of charge carriers in quantum well heterostructures
Scientific adviser: PhD Nikolaevich D. Valery

OP-1-105 Danil M. Revenko, Oleg M. Chapura, Vladislav V. Ovsiannikov. North-Caucasus Federal University, Stavropol
Influence of scandium on luminescence YAG:Yb
Scientific adviser: Prof. Leonid V. Mikhnev

OP-1-106 Lyudmila O. Lobova. Tomsk State University, Tomsk
Terahertz spectroscopy of fluid in capillars
Scientific adviser: Prof. Gregory E. Dunaevskiy

OP-1-107 Evgeniy V. Kraev, Evgeniy V. Kraev, Ivan S. Makogon. FSUE "RFNC-VNIIEF", Sarov city
Influence of substrate surface condition on LIDT of antireflection coatings
Scientific adviser: Anatoliy G. Golubinskiy

OP-1-108 Petr A. Glushkov. Tomsk Polytechnic University, Tomsk
Detrmination of the parameters of the ground state
Scientific adviser: Prof. Elena S. Bekhtereva

OP-1-109 Aleksei V. Kuznetsov. Tomsk Polytechnic University, Tomsk
Vibrational-rotational structure of the silane molecule in the band of $\nu_2 + \nu_4$ (F)
Scientific adviser: PhD Olga V. Gromova

OP-1-110 Zhang Fangce. Tomsk Polytechnic University,
Tomsk
The high-resolution analysis of the first hexad of H232S
Scientific adviser: Prof. Oleg N. Ulenekov

OP-1-111 Aleksei N. Kakaulin. Tomsk Polytechnic University,
Tomsk
Ro-vibrational analysis of the band of the chlorine dioxide
molecule in doublet electronic state
Scientific adviser: PhD Olga V. Gromova

Coffee break

29 April, 2021

10.20 – 13.00 Part 8 aud. 210, Physical building of the TPU
(Lenin av. 43)

Commission chairman: Ph.D Bordulev Yu.S.

Cochairman: Dusaev R.R.

OP-1-112 Mihail I. Volkov. Tomsk Polytechnic University,
Tomsk
Monochromatic Smith–Purcell Radiation in "Pre-wave" zone
Scientific adviser: Prof. Alexander P. Potylitsyn

OP-1-113 Astemir A. Dyshekov. Tomsk Polytechnic
University, Tomsk
Verification of numerical code for calculation of
characteristics of diffraction and transition radiation
Scientific adviser: PhD Dmitry A. Shkitov

OP-1-114 Islam R. Sagov, Yana N. Sutygina,
Evgeniia S. Sukhikh. Tomsk Polytechnic University, Tomsk
The influence of the technical parameters of the SRS plans
on the dosimetric and radiobiologic evaluation
Scientific adviser: PhD Evgeniia S. Sukhikh

OP-1-115 Aleksandr Nechaev. Tomsk state university,
Tomsk
Temperature distribution in phantom limb in the microwave
chamber with the linear source

OP-1-116 Remizov Pavel. Moscow State University of Lomonosov, Moscow
Electron accelerators application for zr-89 medical isotope production
Scientific adviser: Prof. Chernyaev Alexander

OP-1-117 Marzhan M. Toktaganova. Tomsk Polytechnic University, Tomsk
Non-Gaussian effects of bunch charge distribution in generating coherent transition radiation
Scientific adviser: PhD Dmitry A. Shkitov

OP-1-118 Daniil K. Chumakov, Darya S. Flusova. National Research Tomsk Polytechnic University, Tomsk
The Choice of Detector Material for quanta Registration with the Presence of Neutron Background
Scientific adviser: PhD Gennadiy N. Dudkin

OP-1-119 Van V. Nguyen, Vladimir I. Oleshko. Tomsk Polytechnic University, Tomsk
Influence of geometric parameters of a vacuum diode on self-focusing of a high-current electronic beam
Scientific adviser: Prof. Vladimir I. Oleshko

OP-1-120 Sviatoslav S. Polisadov. Tomsk Polytechnic University, Tomsk
Analysis of concept of sterilisation of bark beetles using short- lived isotops
Scientific adviser: Prof. Aleksandr I. Pushkarev

29 April, 2021

15.30 - 17.00 Part 9 aud. 210, Physical building of the TPU (Lenin av. 43)

Commission chairman: Dr. Lider A.M.

Cochairman: Ph.D Chistyakova N.V.

Linguist: Kubritskaya S.A.

OP-1-121 Todor M. Gusvitskii, Alexander P. Potylitsyn.
Tomsk Polytechnic University, Tomsk
Electron beam position monitor based on optical diffraction radiation
Scientific adviser: PhD in Physical and Mathematical Sciences Alexander P. Potylitsyn

OP-1-122 Anastasia S. Belova. Tomsk Polytechnic University, Tomsk
The CH₃D absorption spectrum in the 1.58 μm transparency window of methane
Scientific adviser: PhD Elena S. Bekhtereva

OP-1-123 Mamazakirov Oibek, Nadezhda V. Artyukhova, Sergey G. Anikeev. Tomsk State University, Tomsk
Analysis of binary phase diagrams Ti-Ni-Mo based system
Scientific adviser: PhD Sergey G. Anikeev

OP-1-124 Maria A. Merkulova. Tomsk Polytechnic University, Tomsk
High resolution ro-vibrational analysis of the fundamental of chlorine dioxide
Scientific adviser: PhD Olga V. Gromova

OP-1-126 Bright K. Afornu, Maksim G. Krinitcyn, Omer I. Abubaker. Tomsk Polytechnic University, Tomsk
Silicon carbide coatings on zirconium alloy for lwr fuel cladding design
Scientific adviser: PhD Andrey M. Lider

OP-1-127 Bright K. Afornu, Egor B. Kashkarov, Maxim Syrtanov. Tomsk Polytechnic University, Tomsk
Comparison of the oxidation features of e110 alloy and sintered silicon carbide on e110 alloy at 1200 °C in air for fuel cladding studies
Scientific adviser: Ph.D Andrey M. Lider

OP-1-128 Paul A. Amoah, Nii S. Michael, Ekaterina A. Shcheglova. National Research Tomsk Polytechnic University, Tomsk

Theoretical simulation of preventive and protective measures against insider threat - using markov chains
Scientific adviser: Dr. Ph.D., Ph.D. Boris P. Stepanov

OP-1-129 Hassan E. Tawfik,
1- Chertkov Yuri Borisovich 2- Osama Ashraf. Tomsk
Polytechnic University, Tomsk
Preliminary study of applying spectral shift control method
for VVER-1000 Leu fuel assembly benchmark
Scientific adviser: Yuri B. Chertkov

OP-1-130 Gomaa M. Mohammed, Bright K. Afornu,
Hoo G. Peh. Tomsk Polytechnic University, Tomsk
Non-destructive evaluation of sintered silicon carbide on
zirconium alloy using immersion ultrasound technique
Scientific adviser: Andrey M. Lider

OP-1-131 Sanka A. Nii, Atta A. Paul, Bonah A. Ephraim.
National Research Tomsk Polytechnic University, Tomsk
Assessing security system effectiveness using risk
calculation approach for a typical radiological facility
Scientific adviser: Boris P. Stepanov

SECTION 2. CHEMISTRY: Synthesis and properties of functional materials, physical and chemical methods of research materials, nanomaterials, ecology, organic synthesis, catalysis and petroleum chemistry

April 27, 2021

Zoom conference

13.00 – 18.00

SUBSECTION "CATALYSIS AND PETROLEUM CHEMISTRY"

Chairperson: Dr. Sc. (Chem.) Sergey Ivanovich Reshetnikov

Members: Dr. Sc. (Phys.-Math.) Irina Alexandrovna Kurzina,
Cand. Sc. (Chem.) Gulnara Alfridovna Voronova

13.00 – 13.45 **L-1 Plenary Lecture**

Sergey Ivanovich Reshetnikov, Dr. Sc. (Chem.),
Professor Borescov institute of catalysis

"Adsorption processes in gas purification and catalysis"

OP-2-1D.A. Afanasyeva, T.A. Kaliev. TPU, Tomsk

Development of a three-phase mathematical model of the catalytic cracking feedstock hydrotreating

Scientific supervisor: Cand. Sc. (Engineering) N.S.

Belinskaya

OP-2-2D.E. Dvoeglazova, G.I. Marazakova. YuSU,
Khanty-Mansiysk

Composition of oil asphalten etherification products in various conditions

Scientific supervisor: Cand. Sc. (Chem.) D.S. Korneev

OP-2-3P.I. Zyryanova, K.B. Krivtsova. TPU, Tomsk

Investigation of transformations direction of heavy oil feedstock high-molecular components under conditions of supercritical isopropyl fluid

Scientific supervisor: K.B. Krivtsova

OP-2-4A.A. Kachailov, D.S. Martysheva. TSU, Tomsk
Effect of the amount of complexing agent on the catalytic properties of copper-zinc-aluminium catalysts of CO steam conversion obtained by the mechanochemical method
Scientific supervisor: Cand. Sc. (Chem.) S.I. Galanov

Coffee break

OP-2-5D.S. Korneev, D.E. Dvoeglazova, G.I. Marazakova. YuSU, Khanty-Mansiysk
Changes in the molecular and supramolecular structure of asphaltenes during the step low-temperature thermolysis
Scientific supervisor: Cand. Sc. (Chem.) D.S. Korneev

OP-2-6D.N. Logacheva, K.B. Krivtsova. TPU, Tomsk
Investigation of the transformations directions of heavy petroleum feedstock components under conditions of joint conversion with plant oils
Scientific supervisor: K.B. Krivtsova

OP-2-7A.T. Ordabayeva, M.G. Meiramov, N.M. Ivanova. IOSU, Karaganda
Hydrogenation of phenanthrene in catalysts

OP-2-8A.A. Oreshina, E.K. Vymyatnin, G.Y. Nazarova. TPU, Tomsk
The most efficient process conditions prediction for catalytic cracking riser-reactor by mathematical modeling
Scientific supervisor: Dr. Sc. (Engineering) E.N. Ivashkina

OP-2-9A.D. Strelyaev, K.B. Krivtsova. TPU, Tomsk
Investigation of inhibition mechanisms of asphaltene aggregates precipitation by mixtures-inhibitors based on natural petroleum resins

Scientific supervisor: K.B. Krivtsova

OP-2-10 E.N. Fedorova, K.B. Krivtsova. TPU, Tomsk
Comparative analysis of porphyrins of western siberian
plateau and timano-pechorsk province
Scientific supervisor: K.B. Krivtsova

27 April, 2021

Zoom conference

<https://us04web.zoom.us/j/2800915066?pwd=AaHp84ckbnc>

14.00 – 18.00

SUBSECTION "NANOMATERIALS"

Chairperson: Cand. Sc. Anna Yur'evna Godymchuk,
Members: Cand. Sc. (Chem.) Elena Borisovna Daybova,
Cand. Sc. (Phys.-Math.) Anna Petrovna Zykova

OP-2-11 A.A. Akhmadieva, N.I. Kakhidze. TSU, Tomsk
Influence of aluminum oxide nanoparticles on the
deformation behavior of pure aluminum
Scientific supervisor: Cand. Sc. (Engineering) I.A. Zhukov

OP-2-12 Y. Ding, V.D. Paygin. TPU, Tomsk
Synthesis and spectral characteristics of luminophor based
on lutetium-aluminum pomegranate
Scientific supervisor: Dr. Sc. (Engineering) O.L. Khasanov

OP-2-13 A.A. Karengin, A.G. Karengin, I.Yu. Novoselov. TPU, Tomsk
Plasmachemical synthesis and study of nanosized complex
oxide compositions for dispersion remix-fuel
Scientific supervisor: Cand. Sc. (Phys.-Math.) A.G. Karengin

OP-2-14 N.I. Kakhidze, V.D. Valikhov, M.A. Selikhovkin. TSU, Tomsk

Mechanical characteristics of magnesium alloy MAG4 hardened with ALN nanoparticles

Scientific supervisor: Dr. Sc. (Phys.-Math.) A.B. Vorozhtsov

Coffee break

OP-2-15 A. Pryadko, . TPU, Tomsk

Synthesis of magnetite nanoparticles by coprecipitation method and influence of citric acid on their magnetic properties

Scientific supervisor: Dr. Sc. (Engineering) R.A. Surmenev

OP-2-16 M.D. Raygel, TPU, Tomsk

Effect of the size of Al₂O₃ nanoparticles on the adsorption of a dye

Scientific supervisor: Cand. Sc. (Engineering) A.Yu. Godymchuk

OP-2-17 A.M. Cheremnov, . TPU, Tomsk

Preparation of silver nanoparticles on inert carriers (comparison of methods)

Scientific supervisor: Cand. Sc. (Chem.) G.V. Lyamina

OP-2-18 A.S. Sheptor, TPU, Tomsk

Concentration effect of Ni nanoparticles on ionic content in seedlings tissue

Scientific supervisor: Cand. Sc. (Engineering) A.Yu. Godymchuk

April 27, 2021

6 TSU building, st. Arkady Ivanova, 49, room 311.

Zoom conference

9.00 - 18.00

SUBSECTION "SYNTHESIS AND PROPERTIES OF FUNCTIONAL MATERIALS"

Chairperson: Dr. Sc. (Engineering) Roman Anatolevich Surmenev

Members: Cand. Sc. (Chem.) Natalia Ivanovna Karakchieva, Cand. Sc. (Chem.) Gulnara Alfridovna Voronova

9.00 – 9.45 **L-2 Plenary Lecture**

Roman Anatolevich Surmenev, Dr. Sc. (Engineering), associate professor, Director of the Research Center "Physical Materials Science and Composite Materials" of the Research School of Chemical and Biomedical Technologies "Magnetoelectric effect and its applications"

OP-2-19 E.V. Abdulmenova, K.E. Popovichev. TPU, Tomsk

Synthesis of Ti_2Ni by the method of mechanical alloying
Scientific supervisor: Dr. Sc. (Phys.-Math.) S.N. Kul'kov

OP-2-20 A.A. Bogdanov, TPU, Tomsk

Fatigue durability of antifrictional polyimide based carbon fibers reinforced composite
Scientific supervisor: Dr. Sc. (Engineering) S.V. Panin

OP-2-21 E.V. Abdulmenova, TPU, Tomsk

Formation of the Ti_2Ni phase and its interaction with hydrogen
Scientific supervisor: Dr. Sc. (Phys.-Math.) S.N. Kul'kov

OP-2-22 I.S. Bondarchuk, I.A. Kurzina, F.J. Cadete Santos Aires. TSU, Tomsk

Study of Supported Bimetallic Pd-Sn Nanoparticles by XPS
Scientific supervisor: Dr. Sc. (Phys.-Math.) I.A. Kurzina

OP-2-23 A.F. Buzina, N.A. Cheremnykh, I.A. Alexandrovna. UrFU, Ekaterinburg

Synthesis and electrical properties of solid solution $Gd_{(2-x)}Mg_xZr_2O_{(7-d)}$

Scientific supervisor: Dr. Sc. (Chem.) I.E. Animitsa

Coffee break

OP-2-24 D.S. Vasilev, T.R. Alishin, O.S. Tolkachev.

TPU, Tomsk

Investigation of the influence of the temperature of the SPS sintering on the properties of the composite material based on UHMWPE and B₄C

Scientific supervisor: Dr. Sc. (Phys.-Math.) E.S. Dvilis

OP-2-25 P.V. Konstantinov. TSU, Tomsk

Preparation and properties of Al₂O₃@OH membranes

Scientific supervisor: Cand. Sc. (Chem.) L.B. Naumova

OP-2-26 A.A. Krasnikov, E.S. Lvova. TSU, Tomsk

Synthesis and study of the physical and chemical properties of zeolitic imidazolate framework

Scientific supervisor: Dr. Sc. (Phys.-Math.) I.A. Kurzina

OP-2-27 P.A. Matskan, E.V. Vyshgorodtseva, G.V. Mamontov. TSU, Tomsk

The synthesis of a MIL-100(Fe)/diatomite composite with a hierarchical porous structure for the sorption of volatile organic compounds

Scientific supervisor: Cand. Sc. (Chem.) G.V. Mamontov

OP-2-28 T. Nazarova, O. Reutova. TSU, Tomsk

Formation of photoactive nanomaterials obtained by pulsed laser ablation of bismuth

Scientific supervisor: Cand. Sc. (Phys.-Math.) V.A. Svetlichnyj

13.00 - 14.00

LUNCH

OP-2-29 A.A. Krasnikov, L.L. Ferapontova, I.V. Zakharov. TSU, Tomsk

Investigation of thermal conductivity of composite sorption-active materials

Scientific supervisor: Dr. Sc. (Phys.-Math.) I.A. Kurzina

OP-2-30 A.S. Narutskaya, N.D. Istomin. TPU, Tomsk
Oxidative behavior of high-temperature ceramics based on zirconium diboride

Scientific supervisor: Cand. Sc. (Engineering) E.S. Dedova

OP-2-31 P.Y. Nikitin, A. E. Matveev, I.A. Zhukov. TSU, Tomsk

AlMgB14-TiB2 composite materials obtained by powder metallurgy

Scientific supervisor: Cand. Sc. (Engineering) I.A. Zhukov

OP-2-32 A.S. Novikova, . TPU, Tomsk

High-entropic alloy produced by ion-plasma method

Scientific supervisor: Dr. Sc. (Phys.-Math.) Yu.F. Ivanov

OP-2-33 K.Y. Novolokov, M.V. Mikhailchenkov. TSU, Tomsk

Synthesis of cucurbiturils and separation by HPLC

Scientific supervisor: Dr. Sc. (Chem.) A.A. Bakibaev

OP-2-34 A.A. Prach, V.V. Zarechnev, I.O. Pariy. TPU, Tomsk

Investigation of the influence of technological parameters on the properties of piezoelectric barium titanate

Scientific supervisor: Cand. Sc. (Phys.-Math.) R.A. Surmenev

OP-2-35 O.A. Reutova. TSU, Tomsk

Comparison of the photocatalytic activity of nanomaterials obtained by pulse laser ablation of Zn, Bi, Ti, Sn и Mn targets in water

Scientific supervisor: Cand. Sc. (Phys.-Math.) V.A. Svetlichnyj

Coffee break

OP-2-36 R.T. Sadykov, A.A. Chernyshev, D.N. Lytkina. TSU, Tomsk

Synthesis of composite materials based on polyvinyl alcohol cryogels and calcium phosphates

Scientific supervisor: Dr. Sc. (Phys.-Math.) I.A. Kurzina

OP-2-37 G.O. Samburov, G.O. Kalashnikova, D.V. Gryaznova. FRC KSC RAS, Apatity

Synthetic titanosilicates SIV and AM-4 for the extraction of precious metals from aqueous solutions

Scientific supervisor: Dr. Sc. (Engineering) A.I. Nikolaev

OP-2-38 S.D. Sokolov. TSU, Tomsk

Investigation of the temperature influence on the structure and phase composition of aluminum-magnesium alloy powder

Scientific supervisor: Dr. Sc. (Phys.-Math.) A.B. Vorozhtsov

OP-2-39 A.V. Taratayko, . TSU, Tomsk

Ag- and CeO₂-decorated graphene oxide for 4-nitrophenol reduction

Scientific supervisor: Cand. Sc. (Chem.) G.V. Mamontov

OP-2-40 Z.P. Fedorovich, E.D. Fakhrutdinova. TSU, Tomsk

Photocatalytic properties of nanosized TiO₂ obtained via pulse laser ablation in water

Scientific supervisor: Cand. Sc. (Chem.) E.D. Fakhrutdinova

OP-2-41 A.A. Cherkasov, A.A. Chernyshev, D.N. Lytkina. TSU, Tomsk

Obtaining and studying the properties of a polyvinyl alcohol/sodium alginate hydrogels

Scientific supervisor: Dr. Sc. (Phys.-Math.) I.A. Kurzina

April 28, 2021

6 TSU building, st. Arkady Ivanov, 49, 108 room.

Zoom conference

10.00 – 18.00

SUBSECTION "ECOLOGY" and "ORGANIC SYNTHESIS"

Chairperson: Dr. Sc. (Chem.) Abdigali Abdimanapovich Bakibaev

Members: Cand. Sc. (Chem.) Viktor Sergeevich Malkov,
Cand. Sc. (Chem.) Alphiya Rafaelevna Tsygankova

OP-2-42 Z. Bolatova, A.V. Filimonenko. TPU, Tomsk
Thermal analysis of the product of electric arc processing of slag waste

Scientific supervisor: Cand. Sc. (Engineering) A.Ya. Pak

OP-2-43 K.M. Izosimova, I.A. Mironova. TPU, Tomsk
Preparation of new quaternary phosphonium salts by arylation of phosphines with the use of iodonium salts in the presence of water

Scientific supervisor: PhD Joshimura Akira

OP-2-44 A.R. Kovrizhina. TPU, Tomsk
Synthesis of the first polyfluorinated derivatives of 11h-indeno[1,2-b]quinoxalin-11-one

Scientific supervisor: Dr. Sc. (Chem.) A.I. Khlebnikov

OP-2-45 A.A. Kuznetsov, A.R. Kovrizhina. TPU, Tomsk
Method for the preparation of new tryptanthrin O-acyloximes

Scientific supervisor: Dr. Sc. (Chem.) A.I. Khlebnikov

OP-2-46 R. Medvedev, I. Amelichkin. TSU, Tomsk
Transition metal complexes with mercaptionicotinic acid

Scientific supervisor: Cand. Sc. (Chem.) E.I. Marakina

OP-2-47 A.D. Makaryuk, GASU, Gorno-Altajsk
Identification of the content of flavonoids in medicinal plants of gorniy altai

Scientific supervisor: Cand. Sc. (Chem.) G.V. Larina

Coffee break

OP-2-48 N.A. Manchenko, ., Gorno-Altajsk

Analysis of heavy metal contamination in soil samples of the Chuya river basin

Scientific supervisor: к.г.н Т.V. Bol'bukh

OP-2-49 A.E. Matveev, P.Y. Nikitin, Y.A. Dubkova.

TSU, Tomsk

Phase composition and structure of exothermic reaction products titanium-polyethylene terephthalate

Scientific supervisor: д.ф.-м.н. A.S. ZHukov

OP-2-50 A.V. Matvienko, . TSU, Tomsk

Development of the design of a jet mill for grinding fluoroanhydrite waste

Scientific supervisor: V.V. Matvienko

OP-2-51 K.K. Paushkina, . TPU, Tomsk

Influence of the component composition of suspension fuel based on coal processing waste on the temporary and ecological characteristics of combustion

Scientific supervisor: Cand. Sc. (Phys.-Math.) D.O. Glushkov

OP-2-52 V.O. Okladnikova, M.N. Grigor'eva, O.S. Ochirov., Ulan-Ude

Obtaining a composition of polyhexamethylene guanidine hydrochloride and polyvinyl alcohol

Scientific supervisor: Cand. Sc. (Chem.) S.A. Stel'makh

OP-2-53 M.N. Romanova, SibSU M.F. Reshetneva, Krasnoyarsk

Prospects for the integrated use of Paulownia

Scientific supervisor: к.х.н. Yu.S. Shimova

OP-2-54 E.I. Samorodova, A.R. Kovrizhina. TPU, Tomsk

Synthesis of new derivatives of aldazin 11H-indeno[1,2-b]quinoxaline

Scientific supervisor: Dr. Sc. (Chem.) A.I. KHlebnikov

April 28, 2021

Zoom conference

15.00 – 18.00

SUBSECTION "ECOLOGY" and "ORGANIC SYNTHESIS"

Chairperson: Dr. Sc. (Chem.) Abdigali Abdimanapovich Bakibaev

Members: Dr. Sc. (Chem.) Sergey Gavrilovich Ilyasov, Cand. Sc. (Chem.) Viktor Sergeevich Malkov, Cand. Sc. (Chem.) Alphiya Rafaelevna Tsygankova,

15.00 – 15.45 **L-3 Plenary Lecture**

Sergey Gavrilovich Ilyasov, Dr. Sc. (Chem.), Deputy Director for Research, IPCET SB RAS

"Chemistry of N, N-dinitromere and its derivatives "

OP-2-55 D. Votkina, P. Petunin. TPU, Tomsk
Controlled radicals release under an external stimulus
Scientific supervisor: Cand. Sc. (Chem.) P.S. Postnikov

OP-2-56 V.S. Osokin, I.A. Dereven'kov. ISUCT, Ivanovo
Reactions of aquacobalamin with hypohalites
Scientific supervisor: Cand. Sc. (Chem.) I.A. Dereven'kov

OP-2-57 A.V. Kritskaya, . , Kaluga
Snow cover of the urbanized territories of the city of kaluga is indicator of direct additional intake of pollutants into the oka river
Scientific supervisor: Cand. Sc. (Chem.) A.YU. Loginova

OP-2-58 M.V. Nosova. TSU, Tomsk

Ecological functions of soils of floodland ecosystems in conditions of contamination with easy-soluble technogenic salts of petroleum products

Scientific supervisor: Dr. Sc. (Biolog.) V.P. Seredina

OP-2-59 D.V. Tsuran. TSU, Tomsk

The role of sample preparation in chromatographic analysis of trace amounts of carboxylic acids in water

Scientific supervisor: Cand. Sc. (Chem.) V.V. Khasanov

28 April, 2021

TPU Nano-Center, Lenin Ave., 2A, building 1, building 15, 203 room

14.00 – 18.00

SUBSECTION "NANOMATERIALS"

Chairperson: Cand. Sc. Anna Yur'evna Godymchuk,

Members: Cand. Sc. (Chem.) Elena Borisovna Daybova,

Cand. Sc. (Phys.-Math.) Anna Petrovna Zykova

OP-2-60 E.A. Vornakova. TSU, Tomsk

Use of PMMA@CuFe₂O₄-CuO composites with high antibacterial activity

Scientific supervisor: Cand. Sc. (Chem.) L.B. Naumova

OP-2-61 D. Deulina, V.D. Paygin. TPU, Tomsk

Effect of the separation method on the structure and phase composition of powders of the Y₂O₃-Al₂O₃ system

Scientific supervisor: Dr. Sc. (Engineering) O.L. Khasanov

OP-2-62 K. Ivanov, A. Karengin, I. Novoselov. TPU, Tomsk

Plasmachemical synthesis and study of nanosized complex oxide compositions imitating plutonium-thorium dispersion nuclear fuel

Scientific supervisor: Cand. Sc. (Phys.-Math.) A.G. Karengin

OP-2-63 A.E. Kuznetsova, . TPU, Tomsk

Effect of ZnO nanoparticles' concentration on biometric parameters of wheat seedlings

Scientific supervisor: Cand. Sc. (Engineering) A.Yu. Godymchuk

OP-2-64 V.D. Paygin, T.R. Alishin, D.T. Valiev. TPU, Tomsk

Spark plasma sintering of cerium doped yttrium-aluminum garnet luminescent ceramics

Scientific supervisor: Dr. Sc. (Engineering) O.L. Khasanov

Coffee break

OP-2-65 V.V. Platov, N.I. Kakhidze, G.Z. Kanzamanova. TSU, Tomsk

Relative strength estimation of the welded joints of alloy AA5056 hardening by TiB₂ particles

Scientific supervisor: Dr. Sc. (Phys.-Math.) A.B. Vorozhtsov

OP-2-66 M.D. Raygel. TPU, Tomsk

Effect of the size of Al₂O₃ nanoparticles on the adsorption of a dye

Scientific supervisor: Cand. Sc. (Engineering) A.Yu. Godymchuk

OP-2-67 V. Rastorguev, A. Karengin, I. Novoselov. TPU, Tomsk

Plasmachemical synthesis and study of nanosized complex oxide compositions for dispersion mox-fuel

Scientific supervisor: Cand. Sc. (Phys.-Math.) A.G. Karengin

OP-2-68 A.E. Tikhonov, A.G. Karengin, I.Yu. Novoselov. TPU, Tomsk

Plasmachemical synthesis and study of nanosized complex oxide compositions imitating uranium-thorium dispersion nuclear fuel

Scientific supervisor: Cand. Sc. (Phys.-Math.) A.G. Karengin

OP-2-69 A.M. Cheremnov. TPU, Tomsk

Preparation of silver nanoparticles on inert carriers
(comparison of methods)

Scientific supervisor: Cand. Sc. (Chem.) G.V. Lyamina

OP-2-70 V.R. Chzhou, . TSU, Tomsk

Application of ZnO-Ag bicomponent nanoparticles for
photocatalytic decomposition of dye

Scientific supervisor: Cand. Sc. (Chem.) L.B. Naumova

OP-2-71 A.A. Yudnikova, D.A. Oshkin. TPU, Tomsk

Influence of humic acids on ZnO nanoparticles

Scientific supervisor: Cand. Sc. (Engineering) A.Yu.
Godymchuk

April 29, 2021

6 TSU building, st. Arkady Ivanova, 49, room 311

Zoom conference

9.00 – 18.00

SUBSECTION "PHYSICAL AND CHEMICAL METHODS OF
RESEARCH MATERIALS"

Chairperson: Dr. Sc. (Chem.) Victor Ivanovich Sachkov

Members: Cand. Sc. (Chem.) Natalia Ivanovna

Karakchieva, Cand. Sc. (Chem.) Roman Andreevich Nefedov

9.00 – 9.45 **L-1 Plenary Lecture**

Alphiya Rafaelevna Tsygankova, Cand. Sc. (Chem.),
senior researcher at the Institute of Inorganic Chemistry
named after A.V. Nikolaeva SB RAS, Senior Lecturer,
Department of Analytical Chemistry, FEN NSU

"New effective ways of concentrating and introducing a concentrate of trace impurities in the spectral analysis of high-purity substances and functional materials"

OP-2-72 R.P. Beloglazova, D.Y. Savenko. TSU, Tomsk
Effect of alkaline modifier (Li) on acidic properties of supported $\text{MoO}_3/\text{Zr-Al}_2\text{O}_3$ catalysts
Scientific supervisor: Dr. Sc. (Chem.) O.V. Vodyankina

OP-2-73 Y.M. Vodova, D.E. Usatova. TSU, Tomsk
Solid-phase spectrophotometric determination of synthetic food colors in confectionery products using polymetacrylate matrix
Scientific supervisor: Cand. Sc. (Chem.) N.A. Gavrilenko

OP-2-74 U.V. Goroshkina, O. Laput, I.A. Kurzina. TSU, Tomsk
Effect of ion-plasma treatment on the surface physicochemical properties of materials based on polylactide and hydroxyapatite
Scientific supervisor: Dr. Sc. (Phys.-Math.) I.A. Kurzina

OP-2-75 A. Zakharkiva, . TSU, Tomsk
Potentiometric determination of mercury (II)
Scientific supervisor: Cand. Sc. (Chem.) S.V. Shumar

OP-2-76 D.R. Korsakova, S.G. Anikeev. TSU, Tomsk
A study of change of TiNi electrode surface properties during model cells growing
Scientific supervisor: Cand. Sc. (Chem.) A.V. Shabalina

Coffee break

OP-2-77 A.P. Lakeev, NIIFIRM, Tomsk
HPLC-MS/MS Method for the Simultaneous Quantification of Indole-3-carbinol and 3,3'-Diindolylmethane in Human Plasma
Scientific supervisor: Cand. Sc. (Biolog.) E.A. Yanovskaya

OP-2-78 Y.A. Trotskiy, SibSU M.F. Reshetneva,
Krasnoyarsk

Physical and chemical studies of the chemical composition
of Paulownia

Scientific supervisor: Cand. Sc. (Chem.) Yu.S. Shimova

OP-2-79 D.E. Usatova, J.M. Vodova. TSU, Tomsk
ACID-BASE PROPERTIES OF THE POLYMETHACRYLATE
MATRIX

Scientific supervisor: Cand. Sc. (Chem.) N.A. Gavrilenko

OP-2-80 A.S. Rakhimova. SurSU, Surgut
Physico-chemical characteristics of asphaltenes formation

Scientific supervisor: Cand. Sc. (Chem.) L.V. Tsyro

OP-2-81 E.V. Upyrenko, D.A. Kurgachev. TSU, Tomsk
DEvelopment of a hydrophilic interactions chromatography
mode with additional π -selectivity

Scientific supervisor: Cand. Sc. (Chem.) D.A. Kurgachev

13.00 - 14.00

LUNCH

Zoom conference

**OP-2-82 D.V. Averkin, D.I. Belenky, D.V.
Vishnevetskii.** TvSU, Tver

Development of standard samples of zeta-potential of
particles in dispersed systems

Scientific supervisor: Dr. Sc. (Chem.) P.M. Pakhomov

OP-2-83 A.D. Aleksandrova, O.V. Lundovskaya. NSU,
Novosibirsk

The elemental composition of single-phase kidney stones

Scientific supervisor: Cand. Sc. (Chem.) A.R. Tsygankova

OP-2-84 T.Y. Guselnikova, N.S. Medvedev. I.I.Ch. SB RAS A.V. Nikolaeva, Novosibirsk
Determination of trace impurities in high purity Ge and GeO₂ by ICP MS with collision/reaction cell
Scientific supervisor: Dr. Sc. (Chem.) A.R. Tsygankova

OP-2-85 A.A. Paveleva, D. Khrapov, M.P. Kozadaeva.
TPU, Tomsk
The chemical etching as a method for post-processing of 3D cellular structures obtained by electron-beam melting: limitations and difficulties
Scientific supervisor: Cand. Sc. (Phys.-Math.) M.A. Surmeneva

OP-2-86 A.Y. Shibaev, K.Y. Novolokov. TSU, Tomsk
Modified electrode for voltammetric determination of chromium
Scientific supervisor: Cand. Sc. (Chem.) V.V. Shelkovnikov

April 29, 2021

Zoom conference

15.00 - 16.00 L-5 Plenary Lecture

Francisco J. Cadete Santos Aires, Dr., Institut de Recherches sur la Catalyse et l'Environnement de Lyon (CNRS/UCBL), France; Professor TSU

«Arrays of bimetallic nanoparticles obtained by the block copolymer inverse micelle method»

April 29, 2021

Zoom conference

10.00 - 13.00

Subsection "Synthesis and properties of functional materials"

CHAIRPERSON: Dr. Sc. (Phys.-Math.) Irina Alexandrovna Kurzina

MEMBERS: Cand. Sc. (Chem.) Natalia Ivanovna Karakchieva, Cand. Sc. (Chem.) Gulnara Alfridovna Voronova

OP-2-87 V.T. Badretdinova, T.A. Serykh. SPSU ITMO, Saint Petersburg

Application of calcium phosphate matrices with drug delivery

Scientific supervisor: Cand. Sc. (Chem.) S.A. Ulasevich

OP-2-88 A.A. Buzaev, V.V. Zharkova. TSU, Tomsk

Preparation of Stable Titanium Dioxide-based Sols for Use in Photocatalysis

Scientific supervisor: Dr. Sc. (Engineering) V.V. Kozik

OP-2-89 V.D. Valikhov, N.I. Kakhidze, A.P. Khrustalyov. TSU, Tomsk

Investigation of the effect of carbon and heat treatment on the mechanical properties of the AK9 alloy (Russian grade)

Scientific supervisor: д.ф.-м.н. A.B. Vorozhtsov

OP-2-90 A.A. Volokhova, TSU, Tomsk

Pcl/chloramphenicol/hexafluoro-2-propanol solution for fabrication of various bioactive drug delivery materials

Scientific supervisor: Dr. Sc. (Phys.-Math.) I.A. Kurzina

OP-2-91 R.E. Gafarov, V.V. Shekhovtsov. TSUAB, Tomsk

Obtaining mullite from kaolin clay using plasma energy

Scientific supervisor: Dr. Sc. (Engineering) G.G. Volokitin

Coffee break

OP-2-92 R.O. Guliaev, O.A. Guselnikova, S.O. Vladimirovich. TPU, Tomsk

Intelligent hybrid materials based on piezo-polymers and metal-organic frameworks

Scientific supervisor: к.х.н. P.S. Postnikov

OP-2-93 N. Evseev, I. Zhukov. IPCET SB RAS, Biysk
Metal nitrides synthesis in co-flow filtration mode
Scientific supervisor: Dr. Sc. (Engineering) M.Kh. Ziatdinov

OP-2-94 S.A. Karaseva, V.V. Botvin. TSU, Tomsk
Synthesis of composite materials based on poly- ϵ -
caprolactone and modified hydroxyapatite
Scientific supervisor: Cand. Sc. (Chem.) E.M. Berezina

OP-2-95 E. Sviridova. TPU, Tomsk
Aryne cycloaddition reaction as a facile and mild
modification method for design of electrode materials for
high-performance symmetric supercapacitor
Scientific supervisor: к.х.н. P.S. Postnikov

OP-2-96 N. Evseev, A. Matveev, P. Nikitin. TPU, Biysk
Obtaining refractory compounds in the combustion mode
Scientific supervisor: Dr. Sc. (Engineering) M.Kh. Ziatdinov

OP-2-97 A.Y. Osipova. TPU, Tomsk
Luminescent properties of borate glass-ceramics with a
variable concentration of chromium ions
Scientific supervisor: Cand. Sc. (Phys.-Math.) D.T. Valiev

OP-2-98 O. Khabibullaev. TPU, Tomsk
Intensification of dolomite burning process to obtain active
MgO
Scientific supervisor: Cand. Sc. (Engineering) N.A. Mitina

Section 3. Mathematics. Mathematics: algebra, geometry and analysis; mathematical modeling, visualization and data analysis; equations of mathematical physics; computational mathematics, machine learning and pattern recognition

April 27, 2021

TSU Conference hall (229 room Main building of TSU, Lenin Ave., 36)

ZOOM conference ID: 852 5344 5774

Access code: 825834

14.00 - 18.00

Chairperson section:

Andrey Y. Vesnin, Doctor of Sciences, Corresponding Member of the Russian Academy of Sciences, Director of the RSEMC of TSU

Experts:

Oleg L. Kritskiy, PhD, Associate Professor, TPU;

Mikhail E. Semenov, PhD, Associate Professor, TPU;

Andrey A. Bart, PhD, presenter engineer, TSU;

Denis P. Kasymov, PhD, Associate Professor, TSU;

14.00 - 14.30 L-1 / PLENARY LECTURE

Tatiana Makeeva, Eco-Tomsk LLC, Senior Programming Analyst, Tomsk

A technique for increasing the resolution of seismic data based on convolutional neural networks

***OP-3-1* Tatiana I. Medvedeva,**

Denis P. Kasymov. Tomsk State University, Tomsk
Experimental study of the effect of surface flame retardant impregnation on the fire hazard of wood-based materials
Scientific adviser: PhD Denis P. Kasymov

***OP-3-2* Sofya A. Ilina.** Tomsk Polytechnic University, Tomsk

Segmentation of microfocus X-ray images
Scientific adviser: PhD Mikhail E. Semenov

OP-3-3 Stepan A. Mikhailenko. Tomsk State University, Tomsk

Effect of surface radiation on thermal convection in a rotating cubic cavity

Scientific adviser: Prof. Mikhail A. Sheremet

OP-3-4 Daria S. Loenko. Tomsk State University, Tomsk
Regularization techniques in natural convection problems for power-law non-Newtonian fluid circulation in a differentially-heated cavity

Scientific adviser: Prof. Mikhail A. Sheremet

OP-3-5 Nikita S. Gibanov. Tomsk State University, Tomsk
Numerical investigation of conjugate natural convection in enclosures with local energy sources of various forms by the lattice Boltzmann method

Scientific adviser: Prof. Mikhail A. Sheremet

OP-3-6 Elena V. Shulepova. Tomsk State University, Tomsk

Location effect of the internal periodical volumetric heat-generating source on the structure of a convective flow in a closed double-connected cavity

Scientific adviser: Prof. Mikhail A. Sheremet

OP-3-7 Ekaterina O. Shtanko. National University of Oil and Gas «Gubkin University», Moscow

Linear programming problem: determining the optimal schedule for the operation of the main oil pipeline technological section

Scientific adviser: Prof. Mikhail V. Lurie

OP-3-8 Anton E. Kulagin. Tomsk Polytechnic university, Tomsk

Semiclassical spectral series of the nonlocal Gross-Pitaevskii equation concentrated on a curve

Scientific adviser: Prof. Andrey Y. Trifonov

OP-3-9 Egor A. Tarasov, Irina S. Demidenko, Maria D. Khilchuk. Tomsk State University, Tomsk
Mathematical modeling of the interaction of a model water molecule with a structure composed of carbon nanotubes
Scientific adviser: PhD Egor A. Tarasov

OP-3-10 Marina S. Astanina. Tomsk State University , Tomsk
Numerical simulation of convective heat transfer of fluid with variable viscosity inside a closed porous cube having an isothermal heater
Scientific adviser: Prof. Mikhail A. Sheremet

OP-3-11 Dmitriy O. Larkin. Tomsk State University, Tomsk
Calculation of gas-dynamic functions in the nozzle

OP-3-12 Ismailov Kuat, Kagenov Anuar. 1 - National Research Tomsk State University, 2 - "KazTechInnovations" LLP, Almaty, Kazakhstan, Tomsk
Fixed-wing unmanned aerial vehicle wing shape optimization
Scientific adviser: Prof. Timchenko Sergey

April 28, 2021

TSU Conference hall (229 room, Main Building of TSU, Lenin Ave., 36)

ZOOM conference ID: 852 5344 5774

Access code: 825834

14.00 - 18.00

Chairperson section:

Andrey Yu. Trifonov, Doctor of Sciences, Professor, TPU

Experts:

Mikhail E. Semenov, PhD, Associate Professor, TPU

Mikhail L. Shinkeev, PhD, Associate Professor, TPU
Denis P. Kasymov, PhD, Associate Professor, TSU

14.00 - 14.30 L-2 PLENARY LECTURE

Alexander I. Filkov, Senior Research Fellow, School of Ecosystem and Forest Sciences, Faculty of Science, The University of Melbourne, Australia Extreme fires and dynamic fire behaviours. New challenges

***OP-3-13* Mikhail A. Krainov,**

Nadezhda S. Bondareva. Tomsk State University, Tomsk
Numerical analysis of the influence of periodic temperature changes on the wall on natural convection inside a closed region of the region

Scientific adviser: PhD Nadezhda S. Bondareva

***OP-3-14* **Dmitry V. Leshchinskiy**.** Tomsk State University, Tomsk

Influence of the location of the pollution source on the concentration of the impurity in the street canyon

Scientific adviser: PhD Evgeniy A. Danilkin

***OP-3-15* **Irina V. Del**.** Tomsk State University, Tomsk

Forecast of the surface air temperature based on the multilayer perceptron model

Scientific adviser: Prof. Alexander V. Starchenko

***OP-3-16* **Artem I. Svarovsky**.** Tomsk State University, Tomsk

Application of the Weather Research and Forecasting model to study the "heat island" phenomenon for the conditions of the city of Tomsk

Scientific adviser: Prof. Alexander V. Starchenko

***OP-3-17* Mikhail S. Sereda, **Kirill V. Kostyushin**.** Tomsk State University, Tomsk

Software package for calculating the flow of combustion products in flow paths taking into account the non-stationary gas intake and heating of the rocket engine structure

Scientific adviser: PhD Ivan V. Eremin

OP-3-18 Anastasiya V. Chervakova,

Kirill V. Kostyushin. Tomsk State University, Tomsk
Calculation of losses for chemical inequality in rocket engine nozzles

Scientific adviser: PhD Ivan V. Eremin

OP-3-19 Kristina V. Iokhim. National Research Tomsk State University, Tomsk

Analysis of the plastic flow of titanium alloys in the process of linear friction welding

Scientific adviser: Prof. Vladimir A. Skripnyak

OP-3-20 Marina A. Kurtova,

Dmitry V. Kruchinin. Tomsk State University of Control Systems and Radioelectronics, Russia, Tomsk

The development of a bijection between the set of AND/OR tree variants and the combinatorial set defined by the Motzkin numbers

Scientific adviser: PhD Dmitry V. Kruchinin

OP-3-21 Maksim P. Retinskiy, Yuriy V. Shablya. Tomsk State University of Control Systems and Radioelectronics, Tomsk

The development of algorithms for ranking and unranking the combinatorial set of Fibonacci tree nodes

Scientific adviser: PhD Yuriy V. Shablya

OP-3-22 Aidar Toilibayev, Igor V.

Miroshnichenko Tomsk state university, Tomsk
Numerical simulation of heat transfer in hollow concrete block

Scientific adviser: PhD Igor V. Miroshnichenko,

April 29, 2021

TSU Conference hall (229 room, Main Building of TSU, Lenin Ave., 36)

ZOOM conference ID: 852 5344 5774

Access code: 825834

14.00 - 17.00

Chairperson section:

Andrey Yu. Trifonov, Doctor of Sciences, Professor, TPU

Experts:

Igor V. Miroshnichenko, PhD, Associate Professor, TSU

Mikhail E. Semenov, PhD, Associate Professor, TPU

Alexander L. Lisok, PhD, Associate Professor, TPU

14.00-14.30 L-3/ PLENARY LECTURE

Roman Nuterman, PhD, Research coordinator, Faculty of Science, Niels Bohr Institute, University of Copenhagen, Denmark Seamless multi-scale atmospheric modelling (R. Nuterman, A. Mahura, A. Baklanov)

OP-3-23 Konstantin E. Orlov, Denis P. Kasymov,

Mikhail V. Agafontsev. Tomsk State University, Tomsk
Determination of the characteristics firebrands of natural origin in the conditions of a semi-natural experiment
Scientific adviser: PhD Denis P. Kasymov

OP-3-24 Svyatoslav S. Perelevskiy,

Evgeny A. Pchelintsev. Tomsk State University, Tomsk
Improved model selection procedure for diffusion signal processing
Scientific adviser: PhD Evgeny A. Pchelintsev

OP-3-25 Christina L. Aligasanova. Tomsk State University, Tomsk

Mathematical modeling of heat and mass transfer in the interaction of high-temperature flows with materials in RD nozzles

Scientific adviser: PhD Ivan V. Eremin

OP-3-26 Gennady S. Chursin. Tomsk Polytechnic University, Tomsk

Using computer vision in educational computer games

Scientific adviser: PhD Mikhail E. Semenov

OP-3-27 Andreyevich L. Nikita. Tomsk State University, Tomsk

Application of multigrid methods for the numerical solution of tasks

Scientific adviser: PhD Rinat K. Narimanov

OP-3-28 Galina K. Sokolova. Irkutsk State University, Irkutsk

An analysis of properties of zerostep method for integral algebraic equations of the Abel type: construction of stability domains

Scientific adviser: PhD Olga S. Budnikova

OP-3-29 Tatiana S. Indutskaya. Irkutsk State University, Irkutsk

Numerical solution of fractional order differential-algebraic equations

Scientific adviser: PhD Olga S. Budnikova

OP-3-30 Astemir A. Dyshekov. Tomsk Polytechnic University, Tomsk

Modeling the spread of epidemics using networks

Scientific adviser: PhD Mikhail E. Semenov

Section 6. CONSTRUCTION AND ARCHITECTURE: construction technology; building materials, products and structures; nanotechnologies in construction; methodology of architectural design; theory and history of architecture; restoration and reconstruction of architectural heritage; design of architectural environment

April 27

Coworking center TSUAB, building 2, lecture room 201

<https://bbb.tsuab.ru/b/9uf-tng-bfk> - link for online broadcast

Chairman: Ph.D., Elugachev Pavel Alexandrovich

Co-chairs: Ph.D., Alexey Steshenko Borisovich, Irina Dmitrievna Verevkina, can. arch. Stoyak Yulia Alexandrovna

12.30 - 13.30 **L-1 Plenary lecture**

Designer, artist, Tomsk **Olesya Zaika**

Leading architect of the Center for the Development of the Urban Environment of the Tomsk Region, Tomsk **Alina Krivosheina**

Artist, photographer, Tomsk **Rumyantseva Tatiana**

Opportunities for Architectural Education

14.00 - 14.15 **Welcome speech.**

14.15 - 15.45 **L-2 Plenary lecture**

Chief architect of projects of CJSC Stroypodryad, holder of the Order of the Russian Orthodox Church of St. Sergius of Radonezh, Member of the Union of Designers of Russia, laureate of international competitions of architecture and design, Member of the Siberian Association of Designers and Architects (SADA). Speaker of courses OpenDesign and Accelerator (SADA), Omsk

Averchenko Pavel Nikolaevich

Lecture: Videoecology

Coffee break (15.45-16.00)

16.00 – 19.00 **ORAL PRESENTATIONS**

Conference hall, building 2 TSUAB, этаж 2, sq. Solenaya 2

OP-6-1 Elizaveta R. Shtaudinger. TSUAB, Tomsk
History, properties and application of bricks
Scientific adviser: PhD Aleksey B. Steshenko

OP-6-2 Dinara S. Gorkoltseva. TSUAB, Tomsk
Granular material based on peat-vermiculite composition as applied to wooden structures of buildings
Scientific adviser: Prof. Natalia O. Kopanitsa

OP-6-3 Andrey P. Chylkov, Ivan N. Alexandrov. TSUAB, Tomsk
Influence of technical salts on concrete properties
Scientific adviser: PhD Alexey b. Steshenko

OP-6-4 Inga A. Prischepa, Alexander I. Kudyakov. TSUAB, Tomsk
Influence of microporous additives on the properties of foam concrete
Scientific adviser: Prof. Alexander I. Kudyakov

OP-6-5 Anzhelika A. Kulikova, Olga V. Demyanenko. TSUAB, Tomsk
Modifying additives based on nanomodifiers in the production of building materials
Scientific adviser: Prof. Natalya O. Kopanitsa

OP-6-6 Roman Y. Bakshanskiy, Valentin V. Shekhovtsov. TSUAB, Tomsk
Research of periclase products, obtained in air-plasma environment
Scientific adviser: Prof. Oleg G. Volokitin

OP-6-7 Natalia E. Ryabtseva. TSUAB, Tomsk
Influence of plasticizers on the properties of concrete mix and concrete
Scientific adviser: PhD Alexey b. Steshenko

OP-6-8 Anna S. Simakova, Loginov Denis Yur'evich. T
SUAB, Tomsk

Management of processes of initial structure formation of the
road concrete

Scientific adviser: Prof. Aleksandr I. Kudyakov

OP-6-9 Alexey E. Trofimov,
Vladimir S. Churilin. TSUAB, Tomsk

Monitoring of the water-thermal regime of the soils of the
subgrade of a roadway with a base of recycled asphalt

Scientific adviser: Prof. Sergey V. Efimenko

OP-6-10 Kirill E. Petrov, **Evgeny V. Petrov.** TSUAB,
Tomsk

Numerical simulation of the heat treatment of concrete of
monolithic constructions in winter conditions with the use of
a heating wire

Scientific adviser: PhD Evgeny V. Petrov

OP-6-11 Denis D. Dann, **Maxim V. Petrov,**
Petr N. Khorsov. TPU, Tomsk

Relationship of electromagnetic response parameters at
external determined acoustic impact of model dielectric
samples with defects in concrete

OP-6-12 Marina A. Perkova. SFU, Krasnoyarsk

The convective component of thermal conductivity
influence on temperature fields in external enclosing
structures study

Scientific adviser: Prof. Rashit A. Nasirov

OP-6-13 Batuyk Mikhail. TPU, Tomsk

Increasing the energy efficiency of accelerated curing
during precast concrete production

Scientific adviser: Prof. Vasiliy Y. Ushakov

**OP-6-14 Dmitrij D. Dubrovskij, Kupriyanov Nikolaj
Amvros'evich, Mikhail S. Pavlov.** TPU, Tomsk

Calculation of bending of viscoelastic anisotropic beams

Scientific adviser: Prof. Svetashkov Aleksandr Andreevich

OP-6-15 Gabova Nuriza. TSUAB, Tomsk

Self-compacting concrete production and molding in
monolithic structures

Scientific adviser: PhD Luk'yanchikov Sergey Al'bertovich

April 28

Chairman: Ph.D., Elugachev Pavel Alexandrovich

Co-chairs: Ph.D., Alexey Steshenko Borisovich, Irina Dmitrievna Verevkina, can. arch. Stoyak Yulia Alexandrovna

Auditorium of the Department of Drawing, Painting and Sculpture

10.30 - 13.30 **W-1 Workshop**

Leading architect of the Center for the Development of the Urban Environment of the Tomsk Region, Tomsk

Ksenia Klassen

The art of quick sketching (Sketching)

(registration required Verevkina Irina Dmitrievna
+7 903 951 88 39)

Coworking center TSUAB, building 2, lecture room 201

<https://bbb.tsuab.ru/b/9uf-tng-bfk> - link for online broadcast

11.00 - 12.00 **L-3 Plenary lecture**

Sociologist of the Center for the Development of the Urban Environment of the Tomsk Region, Tomsk

Alexander Berezkin

Lecture: Sociology of space: how space affects human behavior.

12.00 - 13.00 **L-4 Plenary lecture**

Sociologist of the Center for the Development of the Urban Environment of the Tomsk Region, Tomsk

Alexander Berezkin

Lecture: How to organize a case study for an architectural project

Conference hall, building 2 TSUAB, этаж 2, sq. Solenaya 2

12.00 - 13.30 **ORAL PRESENTATIONS**

OP-6-16 Alena O. Kuklina. TSUAB, Tomsk

The concept of a specialized house for senior people
Scientific adviser: Evgeny N. Polyakov

OP-6-17 Diatlova Aleksandra. TSUAB, Tomsk

The problem of the development of infernal architecture
Scientific adviser: Artamonov Maksim

OP-6-18 Taisiia A. Rekun. TSUAB, Tomsk

Student dormitory of Tomsk universities: analysis and prospects for the development of the housing stock
Scientific adviser: Sergei M. Remarchuk

OP-6-19 Elena D. Verevkina. TSUAB, Tomsk

Analysis of the Spassky rural settlement in the framework of settlements' preservation and development
Scientific adviser: PhD in Architecture Elena V. Sitnikova

OP-6-20 Galina I. Monich. TSUAB, Tomsk

Exemplary projects in the architecture of mosques in Tomsk province of the 18th - early 20th centuries

OP-6-21 Hasanova Faizikhon. NSUACE (SIBSTRIN),
Novosibirsk

Wooden bath house
Scientific adviser: PhD Anastasiya A. Yeshakina

OP-6-22 Irina D. Verevkina. TSUAB, Tomsk

Influence of the socio-demographic characteristics of the family on the architecture of the residential unit

Coffee break (13.30-14.00)

14.00 - 17.00 ***Object excursion to the territory of LogWorks production. Meeting with the designers. (Tomsk region, village Kandinka) (registration required Irina Dmitrievna Verevkina +7 903 951 88 39)***

April 29

Coworking center TSUAB, building 2, lecture room 201

10.00 - 10.40 **L-5 Plenary lecture**

Project Manager of the Center for the Development of the Urban Environment of the Tomsk Region, Tomsk

Makeeva Maria

Presentation of the volunteer program of the Center for the Development of the Urban Environment of the Tomsk Region.

10.40 - 11.15

L-6 Plenary lecture

Director of the Center for the Development of the Urban Environment of the Tomsk Region, Tomsk

Konstantin Kazantsev

Landscape architecture: improvement of public urban spaces

12.00 - 13.30 **W-2 Workshop**

Director of the Center for the Development of the Urban Environment of the Tomsk Region, Tomsk

Konstantin Kazantsev

Design of public spaces (city walk. Meeting in the wind park, Usova st., 11a)

14.00 - 15.00 **L-6 Plenary lecture**

Archive Manager TOCM, Tomsk

Olga Yurievna Timofeeva

Drawing up a historical background for a project of revitalization of the territory or construction within the city

Coffee break (15.00-15.15)

16.00 - 18.00

Excursion to the House of Officers, Lenin Ave., 50

*(registration required Verevkina Irina Dmitrievna
+7 903 951 88 39)*

Conference hall, building 2 TSUAB, этаж 2, sq. Solenaya 2

<https://bbb.tsuab.ru/b/9uf-tnq-bfk> - link for online broadcast

Chairman: Ph.D., Elugachev Pavel Alexandrovich

Co-chairs: Ph.D., Alexey Steshenko Borisovich, Irina Dmitrievna Verevkina, can. arch. Stoyak Yulia Alexandrovna

10.00 - 12.00 ORAL PRESENTATIONS (online)

OP-6-23 **Aslan K. Labazanov, Vladislav S. Nikolenko, Khamitov Nurbek.** TSUAB, Tomsk

Study of physico - mechanical properties of cement stone with $W / C = 0.26$ with addition of a chemical additive under temperature gradient

Scientific adviser: Prof. Alexey I. Gnyrya

OP-6-24 **Khamitov Nurbek, Yorkinjon S. Gayratov, Aslan K. Labazanov.** TSUAB, Tomsk

Investigation of the physical and mechanical properties of cement stone with $W / C = 0.3$ under temperature gradient conditions

Scientific adviser: Alexey I. Gnyrya

OP-6-25 **Asylgul C. Karybaeva, Vladislav S. Nikolenko, Aslan K. Labazanov.** TSUAB, Tomsk

Study of physico-mechanical properties of cement stone with $W/C = 0,35$ with the addition of a superplasticizing additive under temperature gradient

Scientific adviser: Prof. Alexey I. Gnyrya

OP-6-26 **Vladislav S. Nikolenko, Aslan K. Labazanov, Khamitov Nurbek.** TSUAB, Tomsk

Study of physico - mechanical properties of cement stone with $W/C=0,4$ with the addition of a superplasticizing additive under temperature gradient

Scientific adviser: Prof. Alexey I. Gnyrya

OP-6-27 Mark A. Semenovkh. TSUAB, Tomsk

Study of the physical and mechanical properties of a ceramic matrix when modified with converter waste
Scientific adviser: Prof. Nelly K. Skripnikova

**OP-6-28 Dmitriy A. Belov, Dmitry A. Belov,
Alesya A. Gruchenkova.** TIU branch in Surgu, Surgut

Analysis of physical and mechanical properties of nanocomposite polymer materials for corrosion protection of pipelines
Scientific adviser: Alesya A. Gruchenkova

OP-6-29 Victor E. Bunkov, Artem M. Ustinov. TSUAB, Tomsk

Experimental study stress-strain state of surface layers of a composite reinforced with a pre-stressed carbon tape
Scientific adviser: PhD Andrey S. Plyaskin

OP-6-30 Irina A. Zgolich. TSUAB, Tomsk

Plate bearing test of the subgrade soils of highways on the territory of Western Siberia
Scientific adviser: PhD Alexey V. Sukhorukov

**OP-6-31 Gleb G. Kulakov, Sergei V. Korobkov,
Andrei M. Katunin.** TSUAB, Tomsk

The influence of the wind flow rate on the integral external heat exchange of building models at their location in the tandem
Scientific adviser: PhD Sergei V. Korobkov

**OP-6-32 Andrey M. Katunin, Sergei V. Korobkov,
Gleb G. Kulakov.** TSUAB, Tomsk

Influence of wind flow rate on external heat exchange average on the edges of building models when located in the tandem
Scientific adviser: PhD Sergei V. Korobkov

OP-6-33 Askar M. Aliev, Natalia E. Ryabtseva. TSUAB, Tomsk

Influence of crumb rudder on concrete properties

Scientific adviser: PhD Alexey B. Stehsenko

OP-6-34 Dobroslav D. Gogol, Alexander D. Nikitin, Alexander A. Kreshchuk. Khakass Technical Institute of Siberian Federal University, Abakan
Energy efficiency of prefabricated housing stocks in cold climates conditions
Scientific adviser: PhD Galina N. Shibaeva

OP-6-35 Olga S. Bochkareva, Pavel V. Filipenko, Viktor S. Orlov. Industrial University of Tyumen, Tyumen
Research of intrinsic deformations of a cement composite
Scientific adviser: PhD Galina A. Zimakova

OP-6-36 Polonik Vladimir. MIREA — Russian technological university, Moscow
The influence of sulfur-containing cross-linking agents on the properties of road binders
Scientific adviser: Prof. Naumova Yulia

OP-6-37 Raziyat B. Kurbanova, Maria A. Darulis. Yugra State University, Khanty-Mansiysk
The efficiency of quartz waste on the physical and mechanical properties of cement stone
Scientific adviser: Prof. Anatoly F. Kosach

OP-6-38 Irina N. Kuznetsova. Yugra State University, Khanty-Mansiysk
Influence of quartz waste on the porosity of cement stone
Scientific adviser: Prof. Anatoly F. Kosach

OP-6-39 Sokolnikova Sofia, Tatarinov Danila. KSTU, Kaliningrad
Study of the properties of photocatalytic concretes and their influence on the decomposition of polycyclic aromatic hydrocarbons
Scientific adviser: PhD Myslitskaya Natalia

OP-6-40 Ekaterina D. Tolstikhina, Daniil R. Bryzhatyu. SFU, Krasnoyarsk

CONSTRUCTION AND ARCHITECTURE

Thursday April 29, 2021

The effect of natural metacaolin as a filler on the properties
of cement

Scientific adviser: PhD Nina G. Vasilovskya

OP-6-41 Ekaterina A. Sorokina,

Natalia O. Kopanitsa. TSUAB, Tomsk effect of sodium hydrocarbonate additive for terms of gripping mixtures for construction 3d-printing

Scientific adviser: Prof. Natalya O. Kopanitsa

OP-6-42 Murtuzov, D.D. Bulat. TSUAB, Tomsk

Influence of plastic waste and silica gel on the strength properties of concrete

Scientific adviser: PhD Alexey B. Stehsenko

April 30

Laboratory of the Department of Building Materials and Technologies,
building 7 TGASU, aud. 101

10.00 - 12.00 **W-4 Workshop**

Associate Professor of the Department of Building Materials and Technologies, TSUAB, Tomsk

Alexey Steshenko

Design of building materials based on industrial waste

SECTION7. IT-TECHNOLOGIES AND ELECTRONICS:
Intelligent control systems; automated information processing and management systems; information Security; nanoelectronics; obtaining and researching nanomaterials; optoelectronics and nanophotonics; plasma emission electronics; intelligent power electronics; microwave electronics; radiolocation systems, television, radio communications, radiometry and wave propagation of radio-frequency and acoustic ranges; pulse and radio frequency measurements.

28 April, 2021

11:30 -17: 00 Vershinin 74, Building FET TUSUR, room 121

Link to connect online:

<https://webinar.tusur.ru/b/puw-99z-hvc>

Chairmen: Dr Alexander Sergeevich Klimov

Expert: Evgeny Yurievich Kostyuchenko, Ph.D.

PLENARY LECTURE

Aleksey Yu.Yakimuk, Ph.D., Laboratory of Safe Biomedical Technologies, TUSUR

Algorithms for analyzing the frequencies of the main tone of vocal performance

OP-7-1 Valeria S. Ageeva, Alina V. Nabieva,
Tatyana S. Kosachenko. Tomsk State University of Control Systems and Radioelectronics, Tomsk

Threats to the security of information that arise within the framework of information flow from an object to a person
Scientific adviser: PhD Anton A. Konev

OP-7-2 Anton V. Stepanov, Alena V. Kovalenko,
Alexander P. Popov. Chuvash State Agrarian University,
Cheboksary

Optical microscope scanning control system based on machine vision algorithms

Scientific adviser: PhD Anastasia I. Dimitrieva

OP-7-3 Evgeniya V. Safronova, Vasiliy S. Safronov. Tomsk Polytechnic University, Tomsk

Identification of predictor features in patients with borreliosis and encephalitis

Scientific adviser: PhD Sergey V. Aksenov

OP-7-4 Alexander O. Terekhin, Dmitriy A. Baranov, Dmitriy S. Bragin. Tomsk State University of System Control and Radioelectronics, Tomsk

Algorithm of mobile network nodes movement in the NS-3 simulation environment

Scientific adviser: PhD Anton A. Konev

OP-7-5 Pavel Y. Laptev, Aleksey A. Gricenko, Nikita D. Shabanov. Tomsk State University of Control Systems And Radio Electronics, Tomsk

Creation of neural network for image analysis

Scientific adviser: PhD Evgeniy Y. Kostyuchenko

OP-7-6 Glukhareva Svetlana. Tomsk State University of Control Systems and Radioelectronics, Tomsk

Assessment of employee reliability in the human resources of the enterprise

Scientific adviser: Prof. Shelupanov Alexander

OP-7-7 Alesker o. Kurbanali. Tomsk Polytechnic University, Tomsk

RGB-sensor color correction for using in digital color analysis

Scientific adviser: PhD Stanislav V. Silushkin

OP-7-8 Farrukhruz D. Pirakov. Tomsk State University of Control Systems and Radioelectronics, Tomsk

Creation of an artificial intelligence module for electronic portfolio systems

Scientific adviser: Prof. Vladimir V. Kruchinin

OP-7-9 Dmitry A. Baranov, Aleksandr O. Terekhin,
Dmitriy S. Bragin. Tomsk State University of System Control
and Radioelectronics, Tomsk
Algorithm of mobile network nodes distribution in the NS-3
simulation environment
Scientific adviser: PhD Anton A. Konev

OP-7-10 Danila S. Belykov, Evgeny O. Kalinin,
Dmitry S. Bragin. Tomsk State University of Control Systems
and Radioelectronics, Tomsk
Overview of security mechanisms and vulnerabilities in
medical BLE devices
Scientific adviser: PhD Anton A. Konev

OP-7-11 Lev S. Shilov, Semen E. Shanshin,
Anna V. Kurtukova. Tomsk State University of Control
Systems and Radioelectronics, Tomsk
Reconstruction of a 3D foot model from video captured
using smartphone camera
Scientific adviser: PhD Alexander S. Romanov

Coffee-break

OP-7-12 Ilya V. Kovalev, Alexander S. Vorontsov,
Vladimir I. Fedoseev. Tomsk State University of Control
Systems and Radioelectronics, Tomsk
Distributed speech analysis software
Scientific adviser: PhD Anton A. Konev

OP-7-13 Mikhail O. Svetlakov. Tomsk State University of
Control Systems and Radioelectronics, Tomsk
Generation of fuzzy systems rules using k-means and ADP
clustering algorithms
Scientific adviser: Prof. Ilya A. Hodashinsky

OP-7-14 Maria I. Rubleva, Farrukhruz D. Pirakov. Tomsk
State Pedagogical University, Tomsk
Experience in implementing avtor auto scheduling
information system in TSPU

Scientific adviser: Andrey P. Klishin

OP-7-15 Mikhail S. Yuzhakov, Daniil I. Filchenko, Artyom K. Berzin. Tomsk state university, Tomsk
Software and hardware complex development for agricultural fields monitoring soil and climatic parameters
Scientific adviser: PhD Alexander V. Badin

OP-7-16 Vladislav A. Sargin, Anna A. Khristolyubova. Federal State Educational Institution of Higher Education "Omsk State Technical University", Omsk
Methodology for preparing the data for the development of an information security threat model for various information security objects
Scientific adviser: Prof. Pavel S. Lozhnikov

OP-7-17 Dmitii E. Rastrepin. Tomsk Polytechnic University, Tomsk
Research of the harmonic composition of currents of a brushless dc motor with permanent magnets
Scientific adviser: PhD Sergey V. Leonov

OP-7-18 Alexey D. Krinitskiy. Tomsk State University, Tomsk
Development of a device for measuring the filling level of a container with industrial waste
Scientific adviser: PhD Olga A. Dotsenko

OP-7-19 Nadezhda A. Kozlova, Andrey S. Koltays, Artem O. Ustinov. Tomsk State University of Control Systems and Radioelectronics, Tomsk
Model for trustworthiness assessment of individual entrepreneurs
Scientific adviser: PhD Elena M. Davydova

OP-7-20 Nikita S. Kayro, Darya D. Teterina, Kirill V. Bilinsky. Tomsk State University, Tomsk
Automated system for measuring the electrophysical parameters of sheet dielectrics in an open resonator
Scientific adviser: PhD Alexander V. Badin

OP-7-21 Kirill V. Shishkov. Siberian State University of Geosystems and Technologies, Novosibirsk
Points of possible improvement of the russian cadastral system through digital technologies and examples of the use of digitalization in other countries with a more developed cadastral system

OP-7-22 Yakov A. Usoltsev, Balzhit S. Lodonova, Artem A. Konovalov. Tomsk State University of Control Systems and Radioelectronics, Tomsk
Study of indicators of neural network performance depending on the intensity of adverse attack
Scientific adviser: PhD Evgeny Y. Kostyuchenko

OP-7-23 Kristina E. Gorbunova, Kirill A. Kachalov. Tomsk State University of Control Systems and Radioelectronics, Tomsk
Recognizing image similarity in news content
Scientific adviser: PhD Sergei S. Kharchenko

OP-7-24 Marina B. Bardamova. Tomsk state university of control systems and radioelectronics, Tomsk
Application a combination of gravitational search algorithm and shuffled frog leaping algorithm for tuning the weights of features in a fuzzy classifier
Scientific adviser: Prof. Ilya A. Hodashinskiy

OP-7-25 Perova Julia , Zhukov Dmitry. MIREA - Russian Technological University, Moscow
A model for analyzing user moods of self-organizing social network structures based on graph theory and the use of neural networks
Scientific adviser: Prof. Zhukov Dmitry

29 April, 2021

11:30 -17: 00 Vershinin 74, Building FET TUSUR, room 121

Link to connect online:

<https://webinar.tusur.ru/b/puw-99z-hvc>

Chairmen: Dr Nikolay Ivanovich Burimov

Expert: Dr Alexander Sergeevich Klimov

PLENARY LECTURE

Vadim S. Arykov, Ph.D., Laboratory of Integrated Optics and Radiophotonics, TUSUR

Photonic monolithic integrated circuits in advanced fiber-optic communication systems and radiophotonics

OP-7-26 Ivan A. Onishchenko. Tomsk State University of Control Systems and Radioelectronics, Tomsk
Development of a program for evaluating shielding effectiveness of an enclosure with an aperture based on the reflection coefficient module

Scientific adviser: Prof. Sergey P. Kuksenko

OP-7-27 Damir R. Urazayev. Tomsk State University of Control Systems and Radioelectronics, Tomsk

UAS remote identification

OP-7-28 Van T. Tran, Artyom A. Poddubnov. Tomsk State University of Control Systems and Radioelectronics, Tomsk
Specific features of igniting a glow discharge through a small hole in a large volume hollow cathode

Scientific adviser: Prof. Alexander S. Klimov

OP-7-29 Elizaveta V. Sapozhnikova. Tomsk State University, Tomsk

Change of electroluminescent characteristics of oled using technology of doping

Scientific adviser: PhD Konstantin M. Degtyarenko

OP-7-30 Nikolay A. Panchenko, Andrey V. Kazakov, Alisa V. Nikoneko. Tomsk State University of Control Systems and Radioelectronics, Tomsk

Research of density of a beam plasma generated by pulsed electron beam in the forevacuum pressure range
Scientific adviser: Prof. Efim M. Oks

OP-7-31 Irina Y. Prokazina. Tomsk State University of Control Systems and Radioelectronics, Tomsk
Method of forming the topology in the resist mask above resolution of the projection I-line lithography
Scientific adviser: PhD Sergey V. Ishutkin

OP-7-32 Arseny V. Dubikov, Anastasia E. Sharaeva. Tomsk State University of Control Systems and Radioelectronics, Tomsk
Photo-induced conductivity in a rds with inclined domain walls in a lithium niobate for different wavelengths
Scientific adviser: Evgeniy N. Savchenkov

OP-7-33 Mikhailenko Anastasia, Konstantin G. Aksenov. Tomsk State University of Control Systems and Radioelectronics, Tomsk
Optical reflection spectrum of a copper-doped lithium niobate crystal
Scientific adviser: Prof. Mikhailovich S. Stanislav

OP-7-34 Victor O. Dolgirev, Daniel S. Rastrigin, Vladislav G. Ivanchenko. Tomsk State University of Control Systems and Radioelectronics, Tomsk
The investigation of light diffraction by multilayer volume ppm holographic diffractive structures in condition of PLA
Scientific adviser: PhD Sergey N. Sharangovich

OP-7-35 Akhmed K. Bsharat, Artem A. Poddubnov, Alexander S. Klimov. Tomsk State University of Control Systems and Radioelectronics, Tomsk
On the possibility of electron-beam sintering of Mn-Zn ferrites in the forevacuum pressure region
Scientific adviser: Prof. Alexander S. Klimov

OP-7-36 Alexander S. Kuzmin, Andrey V. Kazakov, Nikolay A. Panchenko. Tomsk State University of Control Systems and Radioelectronics, Tomsk
Research of the initiation of a constricted arc discharge in a pulsed forevacuum plasma electron source
Scientific adviser: Prof. Efim M. Oks

OP-7-37 Alexander A. Senchenko, Alexander G. Andreev, Andrey Y. Taranenko. Siberian Federal University, Krasnoyarsk
LCMV algorithm under spoofing conditions
Scientific adviser: PhD Sergey P. Tsarev

OP-7-38 Alexander A. Kolmakov, Alexandra S. Temereva, Roman I. Anisimov. Tomsk State University of Control Systems and Radioelectronics, Tomsk
Photovoltaic fields of photorefractive holograms over the surface of the LiNbO₃:Cu X-cut microstructure
Scientific adviser: Prof. Stanislav M. Shandarov

OP-7-39 Ilya E. Gedzenko, Vagiz A. Kabirov. Tomsk State University of Control Systems and Radioelectronics, Tomsk
Synthesis of compensator for the power supply system of an autonomous object based on a two-transformer booster converter
Scientific adviser: PhD Valery D. Semenov

OP-7-40 Andrey V. Kazakov, Nikolay A. Panchenko, Alisa V. Nikonenko. Tomsk State University of Control Systems and Radioelectronics, Tomsk
Research of generation of pulsed electron beam by a forevacuum plasma source based on a constricted arc discharge
Scientific adviser: Prof. Efim M. Oks

OP-7-41 Aleksey A. Zenin. Tomsk State University of Control Systems and Radioelectronics, Tomsk
Effect of thermionic emission on the parameters of the beam plasma generated by a powerful electron beam during it's propagation in a medium vacuum pressure range

OP-7-42 Kirill I. Karpov, Denis B. Zolotukhin. Tomsk State University of Control Systems and Radioelectronics, Tomsk
Controlling potential of the dielectric surface, irradiated by an electron beam in a medium vacuum, through a negative bias of electrode placed near the target
Scientific adviser: Prof. Viktor A. Burdovitsin

OP-7-43 Anastasiya E. Lebedinskaya. Branch of the federal State Unitary Enterprise "Russian Federal Nuclear Center - All-Russian Research Institute of Experimental Physics"
"Y.E. Sedakov Research Institute of Measuring Systems",
Nizhny Novgorod
Process technology and investigation of radiation-resistant diode optocouplers