

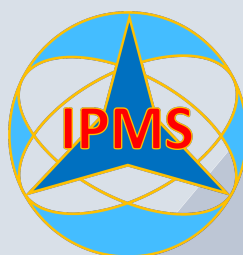


HighMatTech

Program

***8th International Materials Science Conference
HighMatTech-2023***

*October 2-6, 2023
Kyiv, Ukraine*



Sponsors

General Sponsor

IRC NANO



beyond the state of the art

Main Sponsor

NETZSCH

Proven Excellence.

Regular Sponsor



MORE THAN HEAT 30-3000 °C

Partners



Dear Participants of the HighMatTech-2023!

I am honored to welcome you to the 8th International Materials Science Conference HighMatTech-2023!

As previous HighMatTech conferences, the HighMatTech-2023 will focus on the development and application of advanced materials: Metals and Alloys, Ceramics and Glasses, Composite Materials, Low Dimensional and Nano Materials, Films and Coatings.

I sincerely hope you will enjoy your participation in the HighMatTech-2023!

Dr. Sc. Maryna Storozhenko
Scientific Secretary of the HighMatTech-2023

Online participation

- We will send you a Zoom link for joining the Conference at least 30 minutes before the session starts on the day of your presentation. If you are a contact person for your abstract but not the presenter, please make sure the presenter has the link.

Offline participation

- Room 101, Building 9, Igor Sikorsky Kyiv Polytechnic Institute,
35 Polytechnichna Str., Kyiv, Ukraine

CONFERENCE SCHEDULE

Monday, October 2	09:00-09:30	Greetings from Organizers
	09:30-09:45	Conference Technical Details
	09:45-10:40	Symposium: Low-dimensional and Nano Materials Oral Session
	10:40-11:00	Coffee break
	11:00-12:00	Symposium: Low-dimensional and Nano Materials Oral Session
	12:00-13:00	Lunch
	13:00-15:00	Symposium: Low-dimensional and Nano Materials Poster Session
	15:00-15:20	Coffee break
	15:20-17:20	Special Session: FIT-4-NMP project: goals opportunities, prospects
	17:20-18:00	Coffee - Networking
Tuesday, October 3	09:00-10:40	Symposium: Metals and Alloys Oral session
	10:40-11:00	Coffee break
	11:00-12:45	Symposium: Metals and Alloys Oral session
	12:45-14:00	Lunch
	14:00-15:30	Symposium: Metals and Alloys Poster session
	15:30-15:50	Coffee break
	15:50-17:30	Symposium: Metals and Alloys Poster session
	Wednesday, October 4	09:00-11:10
11:10-11:30		Coffee break
11:30-13:00		Symposium: Composite Materials Poster Session
13:00-14:00		Lunch
14:00-15:30		Symposium: Composite Materials Poster Session
15:45-16:05		Coffee break
16:05-16:45		Symposium: Composite Materials Poster Session
Thursday, October 5		09:00-10:30
	10:30-10:50	Coffee break
	10:50-12:05	Symposium: Ceramics and Glasses Oral Session
	12:05-13:00	Lunch
	13:00-14:30	Symposium: Ceramics and Glasses Poster Session
	14:30-14:50	Coffee break
	14:50-15:30	Symposium: Ceramics and Glasses Poster Session
	Friday, October 6	09:00-10:30
10.30-10:50		Coffee break
10:50-13:00		Symposium: Films and Coatings Poster session

Monday, October 2

09:00-09:30 Greetings from Organizers:

Prof. Andrey Ragulya

President of Frantsevich Ukrainian Materials Research Society

Prof. Gennadiy Bagluk

*Acting Director of Frantsevich Institute for Problems of Materials Science,
NAS of Ukraine*

Prof. Ihor Vladymyrskyi

*Acting Director of Y. O. Paton Educational and Research Institute of Materials Science
and Welding of the National Technical University of Ukraine "Igor Sikorsky Kyiv
Polytechnic Institute"*

09:30 - 09:45 Conference Technical Details

**Symposium: Low-Dimensional and Nano Materials
Oral Session**

Head of Session - Prof. Andrey Ragulya

09:45-10:15

Keynote

Soft-bonded Materials: Physics and Chemist

Prof. Andrey Ragulya

Frantsevich Institute for Problems of Materials Science, NAS of Ukraine

10:15-10:30

Invited Speech

Nanoparticles deposited on porous structures as materials for green hydrogen energy

*Norbert Kazamer, Haujin Salih, Florian Josef Wirkert, Michael Brodmann
Westphalian University of Applied Sciences Gelsenkirchen, Germany*

10:30-10:40

General Sponsor – IRC Nano

10:40-11:00

Coffee break

11:00-11:30

Keynote: Spin-qubits in ferroelectric materials

Prof. Valentin Laguta

*Frantsevich Institute for Problems of Materials Science, NAS of Ukraine
Institute of Physics, Academy of Sciences of the Czech Republic*

11:30-11:45

Reduced graphene oxide in metal oxide thermoelectrics

Olena Okhay¹, Oleksandr Tkach²

*¹TEMA- Center for Mechanical Technology and Automation, Department of Mechanical
Engineering, University of Aveiro, Portugal*

*²CICECO – Aveiro Institute of Materials, Department of Materials and Ceramic
Engineering, University of Aveiro, Portugal*

11:45-12:00 **The structure and characteristics of all-dielectric opal-based nanocrystalline composites**
Mykhailo Derhachov¹, Vasyl Moiseienko¹, Bilal Abu Sal²
¹*Oles Honchar Dnipro National University, Ukraine*
²*Tafila Technical University, Jordan*

12:00-13:00 **Lunch**

**Symposium: Low-Dimensional and Nano Materials
Poster Session**

Head of Session – Prof. Andrey Ragulya
See list of participants on pages 12-13

13:00-14:20 **Active Poster Session**

14:20-15:00 **Poster Discussion**

15:00-15:20 **Coffee break**

Special Session

FIT-4-NMP project: goals, opportunities, prospects

15:20-18:00

15:20-15.40 **Newcomers' support for partner searching and participation in Horizon Europe calls within Cluster 4 and Cluster 5 by FIT-4-NMP project**
Serhii Kovalenko
National Academy of Science of Ukraine, FIT-4-NMP project

15.40 -16.10 **Effective tools of consortium creation and Horizon Europe proposal preparation within Cluster 4 and Cluster 5**
Iryna Bilan
H2020 NCP for NMP Frantsevich Institute for Problems of Materials Science, NAS of Ukraine

16.10 - 17.00 **Newcomers' presentations**

17.00 - 17:20 **R&I under the Work Programme 2023-2024 of Horizon Europe Cluster5**
Angela Piatova
H2020 NCP, CaRE, National Technical University of Ukraine 'Igor Sikorsky Kyiv Polytechnic Institute

17.20 – 18.00 **Coffee - Networking**

Tuesday, October 3**Symposium: Metals and Alloys****Oral session****Head of Session - Prof. Yuriy Plevachuk**

- 09:00-09:30 **Keynote: Microstructure and thermophysical properties of low-temperature high-entropy alloys**
Prof. Yuriy Plevachuk^{1,2}, Lyubov Romaka³, Irena Janotova², Peter P. Svec², Rada Novakovic⁴, Viktor Poverzhuk¹
¹*Department of Metal Physics, Ivan Franko National University of Lviv, Ukraine*
²*Institute of Physics, Slovak Academy of Sciences, Bratislava, Slovakia*
³*Department of Inorganic Chemistry, Ivan Franko National University of Lviv, Ukraine*
⁴*National Research Council (CNR-ICMATE), Genoa, Italy*
- 09:30-09:45 **Solidus surface of the Hf–Rh–Ir system**
Lyudmila Kriklya¹, Kostyantyn Korniyenko¹, Vasyl' Petyukh¹, Irina Tikhonova¹, Anatoliy Samelyuk¹, Viktor Sobolev², Petro Levchenko¹
¹*Frantsevich Institute for Problems of Materials Science, NAS of Ukraine*
²*Technical Centre of NAS of Ukraine, Kyiv 04070, Ukraine*
- 09:45-10:00 **Thermodynamic properties of melts Bi-Pr of system**
Volodymyr Shevchuk, Volodymyr Kudin, Nataliya Podoprigora, Valentina Sudavtsova
Frantsevich Institute for Problems of Materials Science, NAS of Ukraine
- 10:00-10:15 **Thermodynamic properties of melts of Mg–In and Mg–In–Yb systems**
Dudnik Anton, Volodymyr Kudin, Larysa Romanova, Valentina Sudavtsova
Frantsevich Institute for Problems of Materials Science, NAS of Ukraine
- 10:15-10:30 **Phase diagram of the Al–Ti–Cr system**
Kostyantyn Korniyenko¹, Konstantin Meleshevich¹, Anatoliy Samelyuk¹, Viktor Sobolev², Lyudmila Kriklya¹
¹*Frantsevich Institute for Problems of Materials Science, NAS of Ukraine*
²*Technical Centre of NAS of Ukraine, Kiev 04070*
- 10:30-10:40 **Sponsor**
- 10:40-11:00 **Coffee break**
- 11:00-11:30 **Keynote: New developments in rapidly quenched soft and hard magnetic alloys**
Peter Svec¹, Irena Janotova¹, Dusan Janickovic¹, Branislav Kunca², Jozef Marcin², Ivan Skorvanek², Yuriy Plevachuk^{1,3}, Peter Svec, Sr.¹
¹*Institute of Physics, Slovak Academy of Sciences, Bratislava, Slovakia*
²*Institute of Experimental Physics, Slovak Academy of Sciences, Kosice, Slovakia*
³*Ivan Franko National University of Lviv, Ukraine*

- 11:30-11:45 **Application of CALPHAD method for predicting the concentration range of amorphization of transition metals melts**
Pavel Agraval¹, Mikhail Turchanin¹, Liya Dreval^{1,2}, Anna Vodopyanova¹
¹*Donbas State Engineering Academy, Ukraine*
²*MSI, Materials Science International Services GmbH, Germany, Ukraine*
- 11:45-12:00 **Visualization of damage to heat-resistant steel after long-term operation on the main steam pipeline for fractographic signs of its destruction**
Halyna Krechkovska^{1,2}, Oleksandra Student¹, Ivan Tsybailo¹
¹*Karpenko Physico-Mechanical Institute, NAS of Ukraine*
²*Lviv Polytechnic National University, Ukraine*
- 12:00-12:15 **Role of hydrogen in strain aging of ferritic/pearlitic low alloy steel under long-term operation**
Olha Zvirko, Hryhoriy Nykyforchyn, Oleksandr Tsyruľnyk, Myroslava Hredil, Oleh Venhryniuk, Halyna Krechkovska, Oleksandra Student
Karpenko Physico-Mechanical Institute, NAS of Ukraine
- 12:15-12:30 **Physical modeling of electrical discharge processes during the processing of aluminum in a hydrocarbon liquid using volume-distributed multi-spark discharge**
Mykola Prystash¹, Andrii Torpakov¹, Eduard Taftai¹, Olha Syzonenko¹, Rasa Kandrotaitė Janutienė², Yevhen Lypian¹
¹*Institute of Pulse Processes and Technologies, NAS of Ukraine*
²*Kaunas University of Technology, Lithuania*
- 12:30-12:45 **Thermokinetics of recrystallization of copper compacts**
Viktor Solntsev, Gennadiy Bagluk, Tetiana Solntseva, Kostiantyn Petrash
Frantsevich Institute for Problems of Materials Science, NAS of Ukraine
- 12:45-14:00 **Lunch**

Symposium: Metals and Alloys

Poster session

Head of Session - Prof. Yuriy Plevachuk

See list of participants on pages 14-17

- 14:00-15:30 **Active Poster Session**
- 15:30-15:50 **Coffee break**
- 15:50-16:50 **Active Poster Session**
- 16:50-17:30 **Poster Discussion**

Wednesday, October 4
Symposium: Composite Materials
Oral Session
Head of Session – Prof. Iurii Bogomol

- 09:00-09:30 **Keynote: Ceramic composites reinforced with high-entropy borides for high-temperature applications**
Prof. Iurii Bogomol
Y. O. Paton Educational and Research Institute of Materials Science and Welding of the National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute”
- 09:30-10:00 **Keynote: Sustainable Composites**
Prof. Petre Badica
National Institute of Materials Physics, Romania
- 10:00-10:15 **Effect of crystallization properties of continuous basalt fibers on thermal stability of composite materials**
Stanislav Ivanitskii, Yurii Chuvashov
Frantsevich Institute for Problems of Materials Science, NAS of Ukraine
- 10:15-10:30 **Features and theoretical analysis of electric and thermoelectric properties of Co/Al₂O₃, Co/SiO₂ and Co/TiO₂ ferromagnetic nanocomposites in the low-temperature region**
Oleksii Baibara¹, Mykhailo Radchenko¹, Arsenii Ievtushenko¹, Yaroslav Stelmakh², Larysa Krushynska², Tatiana Zajarniuk³, Tomashz Story³
¹*Frantsevich Institute for Problems of Material Science, NAS of Ukraine*
²*E.O. Paton Electric Welding Institute, NAS of Ukraine*
³*Institute of Physics, Polish Academy of Sciences, Poland*
- 10:30-10:45 **Effects of thermo-hardening and thermo-plastification at 200-280 °C for microfilled epoxy-composites. Examples of filling by silicon carbide, titanium nitride, gypsum G5 and Cement M400**
Dmitro Starokadomsky¹, Mariia Reshetnyk^{2,3}
¹*Chuiko Institute of Surface Chemistry, NAS of Ukraine*
²*National Museum of Natural History, NAS of Ukraine*
³*M.P. Semenenko Institute of Geochemistry Mineralogy and Ore Formation, NAS of Ukraine*
- 10:45-11:00 **Cyclic heat resistance and peculiarities of oxidation of nickel reactive sintered alloys**
Viktor Solntsev, Gennady Bagluk, Tetiana Solntseva, Kostiantyn Petrash, Alevtina Mamonova, Galina Molchanovsky
Frantsevich Institute for Problems of Materials Science, NAS of Ukraine
- 11:00-11:10 **Sponsor**
- 11:10-11:30 **Coffee break**

Head of Session – Prof. Iurii Bogomol
See list of participants on pages 18-22

11:30 - 13:00 Active Poster Session

13:00-14:00 Lunch

14:00 - 15:45 Active Poster Session

15:45 - 16:05 Coffee break

16:05- 16:45 Poster Discussion

Thursday, October 5
Symposium: Ceramics and Glasses
Oral Session

Head of Session – Prof. Tetiana Prichna
Chair – Dr.Sc. Hanna Borodianska

- 09:00-09:30 **Keynote: Prospects for the application of bulk materials and vacuum-arc deposited coatings based on Ti,Nb-Al-C MAX phases demonstrating high-temperature wear resistance, high electrical conductivity and stability in oxygen and hydrogen environments**
Prof. Tetiana Prichna¹, Jrest Ostash², Olexander Kuprin³, Viktoria Podhurska², Tetiana Serbenyuk¹, Volodymyr Sverdun¹, Bernd Büchner⁴, Julia Hufenbach⁴, Semyon Ponomaryov⁵, Myroslav Karpets⁶, Anatoly Marchenko¹
¹*Institute for Superhard Materials, NAS of Ukraine*
²*Karpenko Physical-Mechanical Institute, NAS of Ukraine*
³*National Science Center Kharkiv Institute of Physics and Technology, Ukraine*
⁴*Leibniz-Institut für Festkörper- und Werkstoffforschung Dresden, Germany*
⁵*Institute of Semiconductor Physics, NAS of Ukraine*
⁶*National Technical University of Ukraine «Igor Sikorsky Kyiv Polytechnic Institute»*
- 09:30-09:45 **Infrared transparent ceramics of complex architecture for extreme operating conditions**
Roman Yavetskiy, Olexandra Kryzhanovska, Nadiia Safronova, Dariia Chernomorets, Oxana Matvienko, Serhii Parkhomenko, Andrii Doroshenko, Ihor Vorona, Anton Balabanov, Arsenii Timoshenko
Institute for Single Crystals, NAS of Ukraine
- 09:45-10:00 **The effect of ZrO₂ concentration on the optical properties of Y₂O₃ transparent ceramics**
Dariia Chernomorets^{1,2}, Jan Hostaša², Laura Esposito²
¹*Institute for Single Crystals, NAS of Ukraine*
²*CNR ISSMC, Institute of Science, Technology and Sustainability for Ceramics, Italy*
- 10:00-10:15 **Effect of Mn doping on structural and optical properties of (Zn,Mg)O ceramics**
Iryna Markevich¹, Tetyana Stara¹, Yuliia Polishchuk¹, Semyon Ponomaryov¹, Kostiantin Kozoriz¹, Oleksandr Melnichuk², Lyudmyla Melnichuk², Nadiia Korsunsk¹, Lyudmyla Borkovska¹, Larysa Khomenkova^{1,3}
¹*V. Lashkaryov Institute of Semiconductor Physics, NAS of Ukraine*
²*Nizhyn Mykola Gogol State University, Ukraine*
³*National University “Kyiv Mohyla Academy”, Ukraine*
- 10:15-10:30 **Phase transformations during heat treatment of germanium-doped hydroxyapatite and their influence on physico-chemical and biological properties**
Nataliia Ulianchych¹, Sergey Firstov¹, Volodymyr Kolomiiets¹, Oksana Koriak¹, Larysa Strilets¹, Mykhailo Rublenko², Tetiana Todosiuk²
¹*Frantsevich Institute for Problems of Materials Sciences, NAS of Ukraine*
²*Bila Tserkva National Agrarian University, Ukraine*
- 10:30-10:50 **Coffee break**

- 10:50-11:20 **Keynote: Controllable synthesis of doped ceria nanopowders by cations with different valence state**
Prof. Branko Matovic
Centre of Excellence "Cextreme Lab," Vinča Institute of Nuclear Sciences - National Institute of The Republic of Serbia, University of Belgrade
- 11:20-11:35 **Structure, mechanical characteristics and high-temperature stability of sintered under high and by hot pressing ZrB₂- and HfB₂- based materials without and with SiC and Si₃N₄ additions**
 Tetiana Prikhna¹, Anastasiya Lokatkina¹, Pavlo Barvitskyi¹, Myroslav Karpets², Viktor Moshchil¹, Semyon Ponomarov³, Johen Werner⁴, Bernd Büchner⁴, Richard Haber⁵, Zeynep Ayguzer Yasar⁵, Branko Matovich⁶, Robert Kluge⁴, Anatoly Bondar⁷, Olexander Borymskyi¹, Leonid Devin¹
¹*V. Bakul Institute for Superhard Materials, NAS of Ukraine*
²*National Technical University of Ukraine «Igor Sikorsky Kyiv Polytechnic Institute»*
³*Institute of Semiconductor Physics, NAS of Ukraine*
⁴*Leibniz-Institut für Festkörper- und Werkstoffforschung Dresden, Germany*
⁵*Department of Materials Science and Engineering, The State University of New Jersey, USA*
⁶*Institute of Nuclear Sciences Vinča, Belgrade University, Serbia*
⁷*Frantsevich Institute for Problems of Material Sciences, NAS of Ukraine*
- 11:35-11:50 **AlMgB₁₄-related orthorhombic boron carbide phases from first principles: structure and mechanical properties**
Oleksiy Bystrenko^{1,2}, Jingxian Zhang^{2,3}, Dong Fangdong⁴, Xiaoguang Li^{2,3}, Weiyu Tang^{2,3}, Kaiqing Zhang^{2,3}, Jianjun Liu^{2,3}
¹*Frantsevich Institute for problems of materials science, NAS of Ukraine*
²*Shanghai Institute of Ceramics, Chinese Academy of Sciences, Shanghai, China*
³*University of Chinese Academy of Sciences, Beijing, China*
⁴*Science and Technology on Transient Impact Laboratory, Beijing, China*
- 11:50-12:05 **Machine Learning assisted structure optimization and mechanical properties assessment of Si-doped boron carbide**
Oleksandr Vasiliev, Vladyslav Bilyi, Valerii Bekenev, Valerii Kartuzov
Frantsevich Institute for Problems of Materials Science, NAS of Ukraine

12:05-13:00 **Lunch**

Symposium: Ceramics and Glasses

Poster Session

Head of Session– Prof. Tetiana Prichna

See list of participants on pages 23-24

13:00-14:30 **Active Poster Session**

14:30-14:50 **Coffee break**

14:50-15:30 **Poster Discussion**

Friday, October 6
Symposium: Films and Coatings
Oral Session

Head of Session – Dr. Sc. Maryna Storozhenko

- 09:00-09:30 **Keynote: High-performance coatings solving tribological challenges**
Dr.-Ing. Ewald Badish
AC2T Research GmbH Wiener Neustadt, Austria
- 09:30-09:45 **Invited speech: Polymer Coatings for minimally lubricated surface development**
Abhinava Chatterjee
Indian Institute of Technology, India
- 09:45-10:00 **Features of the formation of ceramic coatings on titanium alloys by plasma-electrolytic treatment with the addition of hydroxyapatite and diatomite**
Nataliia Imbirovych¹, Krzysztof Jan Kurdzydowski², Oleksandr Povstyanoy¹, Valentyna Tkachuk¹
¹*Lutsk National Technical University, Ukraine*
²*Bialystok University of Technology, Poland*
- 10:00-10:15 **Oxide spinel protective coatings for steel interconnects of solid oxide cell stacks**
Sebastian Molin, Justyna Ignaczak, Omid Ekhlasiogouei, Piotr Jasiński
Politechnika Gdańska, Poland
- 10:15-10:30 **Effect of boron oxide on operational properties of coatings obtained from germanium oxide and zinc sulfide for IR-optics**
Viktor Zinchenko¹, Igor Magunov¹, Olga Mozkova², Boris Gorshtein²
¹*O.V. Bogatsky Physico-Chemical Institute, NAS of Ukraine*
²*State Enterprise for Special Instrument Making «Arsenal», Ukraine*
- 10:30-10:50 **Coffee break**

Symposium: Films and Coatings
Poster Session

Head of Session – Dr.Sc. Maryna Storozhenko

See list of participants on pages 27-29

- 10:50-12:20 **Active Poster Session**
- 12:20-13:00 **Poster Discussion**

POSTER SESSION
Low Dimensional and Nano Materials
Monday, October 2
13:00-15:00

Synthesis of multi-walled carbon nanotubes by the method of chemical deposition from methane-air conversion products

Alexander Khovavko¹, Denis Filonenko¹, Alexey Svyatenko¹, Andriy Nebesnyi¹, Anastasiya Kolesnichenko², Yeva Boboshko^{2,3}, Maksym Barabash^{1,2,3}

¹*The Gas Institute, NAS of Ukraine*

²*Technical Centre, NAS of Ukraine*

³*National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"*

Nanostructured photo catalytically active TiO₂-based nanocomposite systems

Olena Lavrynenko, Maksim Zahornyi, Olesja Pavlenko, Serhiy Korichev

Frantsevych Institute for Problems of Materials Science, NAS of Ukraine

Impact of mechanical treatment duration on the structure of nanopowder composite SiO₂/TiO₂

Yurii Yavorsky^{1,2}, Myroslav Karpets^{1,2}, Andrii Hrubciak³, Oleksandr Dudka^{1,2}, Tiancheng An^{1,2}, Yulong Guo^{1,2}

¹*Y.O. Paton ER IMW, Ukraine*

²*National Technical University of Ukraine "Kyiv Polytechnical Institute"*

³*G.V. Kurdyumova Institute of Metal Physics, NAS of Ukraine*

Electrochemical properties of 2D MoS₂/Mo nanocomposites

Leonid Kulikov, Nataliia Konih-Ettel, Victor Talash, Yuliia Rudenko, Mykolai Shevchuk

Frantsevich Institute for Problems of Materials Science, NAS of Ukraine

Phase formation in layered Pd/Ag/Fe films and their magnetic properties during annealing in hydrogen

Oleksandr Sliesarenko¹, Leonid Levchuk¹, Maryna Natalenko¹, Katerina Graivoronska², Ruslan Shkarban¹, Tetyana Verbytska¹, Iurii Makogon¹, Sergiy Sidorenko¹

¹*Y.O. Paton Educational and Research Institute of Materials Science and Welding National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"*

²*Frantsevich Institute for Problems of Material Science, NAS of Ukraine*

Local strain strengthening of the low-carbon steels near inclusions by severe plastic deformation

Svetlana Gubenko^{1,2}

¹*Iron and Steel Institute of Z. I. Nekrasov, NAS of Ukraine*

²*Prydniprovsk State Academy of Civil Engineering and Architecture, Ukraine*

Quality factor of metal nanoparticles having the shape of a bicone and a bipyramid

Andrii Korotun^{1,2}

¹*National University Zaporizhzhia Polytechnic, Ukraine*

²*G.V Kurdyumov Institute for Metal Physics, NAS of Ukraine*

Diffusion-induced local ordering in Pt/Co bilayers

Roman Pedan¹, Pavlo Makushko^{1,2}, Oleksandr Dubikovskiy^{1,3}, Andrii Bodnaruk^{1,4}, Andrii Burmak¹, Denys Makarov², Igor Vladymyrskiy¹

¹National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

²Helmholtz-Zentrum Dresden-Rossendorf e.V., Institute of Ion Beam Physics and Materials Research, Germany

³V. Lashkaryov Institute of Semiconductor Physics, NAS of Ukraine

⁴Institute of Physics, NAS of Ukraine

Features of the spectral characteristics of a metallic nanotube of variable thickness

Roman Malysh¹, Andrii Korotun^{1,2}, Igor Titov³

¹National University Zaporizhzhia Politechnic, Ukraine

²G.V Kurdyumov Institute for Metal Physics, NAS of Ukraine

³UAD Systems, Ukraine

Plasmons in a chain of prolate metallic nanospheroids

Maksym Maniuk¹, Andrii Korotun^{1,2}, Valery Kurbatsky¹, Igor Titov³

¹National University Zaporizhzhia Politechnic, Ukraine

²G.V. Kurdyumov Institute for Metal Physics, NAS of Ukraine

³UAD Systems, Ukraine

Plasmon resonance in a square lattice of metal nanodisks on a dielectric substrate

Nazar Pavlyshche¹, Andrii Korotun^{1,2}, Valery Kurbatsky¹

¹National University "Zaporizhzhia Politechnic", Ukraine

²G.V. Kurdyumov Institute for Metal Physics, NAS of Ukraine

Intrinsic role of Cu⁺ and In³⁺ cations in the nature of ferrielectric ordering in CuInP₂S₆ ferroics

Ruslan Yevych, Vitalii Liubachko, Yulian Vysochanskii

Institute for Solid State Physics and Chemistry, Uzhhorod National University, Ukraine

Atomic-scale modeling of the formation mechanism of nanocrystalline nuclei of SiC nanofibers from methyl trichlorosilane molecules

Peter Sylenko, Alex Pokropivny, Denis Andrushchenko, Yuriy Solonin

Frantsevich Institute for Problems of Materials Science, NAS of Ukraine

Supercritical fluid synthesis of nanocrystalline c-BN and other BN structures from graphite-like boron nitride

Alex Pokropivny¹, Sergey Maloshtan², Anatoly Smolyar², Peter Sylenko¹, Yurii Solonin¹

¹Frantsevich Institute for Problems of Materials Science, NAS of Ukraine

²M.P. Semenenko Institute of Geochemistry, Mineralogy and Ore Formation, NAS of Ukraine

Modeling of photovoltaic characteristics of a TiO₂/porous-Si/Si-based heterojunction solar cell

Alena Dyadenchuk

Dmytro Motorny Tavria State Agrotechnological University, Ukraine

POSTER SESSION
Metals and Alloys
Tuesday, October 3
14:00-17:30

Surface hardening of Ti₆Al₄V alloy using high-frequency mechanical impacts

Svitlana Voloshko¹, Andrii Burmak¹, Bogdan Mordyuk^{1,2}, Taras Krasovskyi³, Nataliya Franchik¹, Myhailo Vasylyev²

¹National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

²G.V. Kurdyumov Institute for Metal Physics, NAS of Ukraine

³Kyiv Academic University, Ukraine

Bioresorbable powder materials based on Mg-Mn-Zn

Serhii Teslia, Tetiana Soloviova, Mykhailo Vterkovskiy, Vitalii Sheremet, Petro Loboda
Igor Sikorsky Kyiv Polytechnic Institute, Ukraine

The thermochemical properties of ternary Ag–Eu–Sn liquid alloys

Natalia Usenko¹, Michael Ivanov², Natalia Kotova¹

¹Taras Shevchenko National University, Ukraine

²Frantsevich Institute for Problems of Materials Science, NAS of Ukraine

Experimental bench tests on the corrosion resistance of construction materials and environmental safety for the cooling system of a nuclear power plant with biocides water treatment

Pavlo Kuznietsov^{1,2}, Olga Biedunkova¹

¹National University of Water and Environmental Engineering, Ukraine

²Rivne NPP, Ukraine

Fractal analysis of the structure with non-metallic inclusions characteristics impact on the weld metal mechanical properties

Viktor Holovko¹, Olha Shtofel^{1,2}, Iryna Krasikova³, Igor Krasikov³

¹E. O. Paton Electric Welding Institute, NAS of Ukraine

²National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

³Frantsevich Institute for Problems in Materials Science, NAS of Ukraine

The enthalpies of mixing of ternary Al–Ce–Co liquid alloys

Natalia Kotova¹, Natalia Usenko¹, Michael Ivanov²

¹Taras Shevchenko National University, Department of Chemistry, Ukraine

²Frantsevich Institute for Problems of Materials Science, NAS of Ukraine

Electrochemical studies of the dental implants from titanium and titanium alloys

Victor Talash¹, Yuliia Rudenko¹, Valerii Nespryadko², Valerii Los², Maskim Pavlenko³, Valerii V. Los³

¹Frantsevich Institute for Problems of Materials Science, NAS of Ukraine

²Bogomolets National Medical University, Ukraine

³Shpyk National Healthcare University of Ukraine

Structural sensitivity of the wear resistance of Armco-iron at friction by quasistatic and dynamic loading

Konstantin Grinkevych, Yurii Podrezov, Alex Golubenko, Igor Voskoboynik, Nick Iefimov

Frantsevich Institute for Problems in Materials Science, NAS of Ukraine

The Iron-Carbon system. Eutectic crystallization involving hyper-cementite carbide

Vladyslav Mazur

National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Properties of nickel powders obtained by reduction in moving layers

Olena Makarenko, Petro Radchenko, Olha Hetman, Tetyana Babutina, Anatolii Samelyuk

Frantsevich Institute for Problems of Materials Science, NAS of Ukraine

Peculiarities formation of welded joints under the external electromagnetic influence

Sergei Maksimov, Olena Berdnikova, Olena Prilipko, Tetiana Alekseenko

E.O. Paton Electric Welding Institute, NAS of Ukraine

Development status and disadvantages of well-known TDA methods for the chemical composition and properties of cast iron

Kateryna Sirenko, Valeriy Mazur

Physical and Technological Institute of Metals and Alloys, NAS of Ukraine

Microstructural and mechanical behavior of friction welded joints of Al 6013-T6 aluminum alloy

Mohamed Farid Benlamnour¹, Mohamed Oubelkacem Azzoug², Tahar Saadi¹, Nabil Bensaid¹, Riad Badji¹, Mosbah Zidani^{3,4}

¹*Research Center in Industrial Technologies CRTI, Algeria*

²*Laboratory of Materials Technology, Faculty of Mechanical Engineering and Process Engineering, Algeria*

³*Université Mohamed Khider Biskra, Laboratoire de Génie Énergétique et Matériaux (LGEM), Algérie*

⁴*Université de Batna 02, Faculté de Technologie, Algeria*

Phase transformations in the Ti-Fe-Sn system

Iuliia Fartushna, Maryna Bulanova, Kostyantyn Meleshevych, Anatolii Sameliuk, Iryna Tikhonova

Frantsevich Institute for Problems of Materials Science, NAS of Ukraine

Molecular dynamics simulation of the early stages of interfacial amorphization in Ni/Ti system

Sergii Konorev, Yaroslav Sokur, Ivan Kruhlov, Andrii Orlov

National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Characteristics of hafnium after thermochemical treatment: influence of the surface layer state

Vasyl Trush, Iryna Pohrelyuk, Alexander Luk'yanenko, Viktor Fedirko, Taras Kravchyshyn, Serhii Lavrys

Karpenko Physico-Mechanical Institute, NAS of Ukraine

Wetting of metal substrates with liquid halides

Vitaliy Krasovskyy, Nataliia Krasovskaya

Frantsevich Institute for Problems of Materials Science, NAS of Ukraine

Structure and properties of liquid quenched Al₄CoCrCuFeNi high-entropy alloy

Oleksandr Kushnerov, Valerii Bashev, Serhii Ryabtsev

Oles Honchar Dnipro National University, Ukraine

Features of the structural formation of tungsten single crystals in the shape of hollow rotational bodies

Yuriy Nikitenko, Viktor Shapovalov, Volodymyr Yakusha, Oleksandr Gnizdylo, Olena Berdnikova

E.O. Paton Electric Welding Institute, NAS of Ukraine

Feature of microstructural evolution and corrosion behavior Ti6Al4V alloy obtained from elemental powder blends

Serhii Lavrys¹, Iryna Pohrelyuk¹, Dmytro Savvakyn², Khrystyna Shliakhetka³, Mariia-Olena Danyliak¹

¹*Karpenko Physico-Mechanical Institute, NAS of Ukraine*

²*Kurdyumov Institute for Metal Physics, NAS of Ukraine*

³*Centre for Advanced Materials Application SAS, Bratislava*

Features of obtaining high-entropy CoCrFeNiMn_{1-x} alloys by the powder metallurgy method and their mechanical properties.

Maria Saviak¹, Angel Vicente Escuder², Elizaveta Klytskina², Vicente Amigó Borrás²

¹*Frantsevich Institute for Problems of Material Sciences, NAS of Ukraine*

²*Instituto de Tecnología de Materiales, Universidad Politécnica de Valencia, Spain*

The rational constructional and technological parameters determination method for powder materials forming processes

Anatoliy Mikhailov¹, Yevgenii Shtefan², Oleg Mikhailov¹

¹*Frantsevich Institute for Problems of Material Sciences, NAS of Ukraine*

²*National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"*

Investigation of crystallization processes of Co₆₈Fe₄Cr₄Si₁₃B₁₁ amorphous alloy by in-situ high temperature XRD method.

Oleksandr Smolyakov¹, Michal Strach², Tetiana Dmitrenko²

¹*Zaporizhzhia National University, Ukraine*

²*Chalmers University of Technology, Sweden*

Low-temperature physical and mechanical properties of doped non-equiatomic high entropy alloys of the Fe-Co-Ni-Cr system

Yuri Semerenko, Viktor Zoryansky

B.Verkin Institute for Low Temperature Physics and Engineering, NAS of Ukraine

Nanocrystallization behaviour of amorphous Co₆₇Fe₄Cr₇Si₈B₁₄ alloy

Yulia Nykyruy, Stepan Mudry, Yuriy Kulyk

Ivan Franko National University of Lviv, Ukraine

Effect of the stress-strain state on the properties and structure formation of materials of the Fe-Al system under hot deformation

Stepan Kyryliuk, Oleksandr Tolochyn, Oleksandra Tolochyna, Genadii Bagliuk

Frantsevich Institute for Problems of Materials Science, NAS Ukraine

Microstructure and densification mechanism of Al-15Fe alloy prepared by metallurgy route

Serhii Teslia, Anatoliy Stepanchuk, Mariia Kruzhkova, Daria Chyzhska, Danylo Sudakov

Igor Sikorsky Kyiv Polytechnic Institute, Ukraine

Phase equilibria of the Hf–Ni–Ti system at solidus temperatures

Anastasiia Storchak, Maryna Bulanova, Tichonova Iryna, Samelyuk Anatoliy

Frantsevich Institute for Problems of Materials Science, NAS of Ukraine

Projection of the liquidus surface in the Hf–Ni–Ti system in the HfNi–Ni–NiTi region

Anastasiia Storchak, Maryna Bulanova, Konstantin Meleshevich, Anatoliy Samelyuk

Frantsevich Institute for Problems of Materials Science, NAS of Ukraine

Estimation of the lattice parameter and distortion of atoms based on the results of Ab initio study of structural fragments of TiVZrNbMo, TiVZrNbTa, and TiVZrNbHf multicomponent equiatomic alloys

Nataliia Rozhenko, Liubov Ovsianikova, Valery Kartuzov

Frantsevich Institute of Materials Science Problems, NAS of Ukraine

Effect of pulsed TIG welding process parameters on microstructure and mechanical properties of dissimilar welds

Nabil Bensaïd, Mohamed Farid Benlamnour, Tahar Saadi, Riad Badji

¹*Research center in Industrial Technologies -CRTI-, Algeria*

POSTER SESSION
Composite Materials
Wednesday, October 4
11:30-16:45

Advanced nanocomposites TiO₂-Ag for viruses remediation

Maksym Zahornyi¹, Olena Lavrynenko¹, Nadya Tyschenko¹, Andrey Ragulya¹, Olga Povnitsa², Liubov Artiukh², Svitlana Zahorodnia², Arsenii Ievtushenko¹

¹*Frantsevich Institute for Problems of Materials Science, NAS of Ukraine*

²*D. K. Zabolotny Institute of Microbiology and Virology, NAS of Ukraine*

Nanostructured materials compacted via hot pressing method by direct current transmission

Edwin Gevorkyan¹, Oksana Morozova¹, Chyshkala Volodymyr², Volodymyr Nerubatskyia¹

¹*Ukrainian State University of Railway Transport, Ukraine*

²*V. N. Karazin Kharkiv National University, Ukraine*

Bulk electrical resistance and electromagnetic energy absorption of pressureless sintered aluminum nitride ceramics

Igor Fesenko¹, Vasyl Chasnyk², Oksana Kaidash¹

¹*Bakul Institute for Superhard Materials, NAS of Ukraine*

²*State Enterprise Scientific Research Institute ORION, Ukraine*

Optimization of the composition and structure of carbon fiber preforms for carbon-carbon composite materials

Oleksandra Mazna, Viktoriia Bezsmertna, Yurii Vasylenkov, Nataliia Hohlova, Valentyna Danyliuk

Frantsevich Institute for Problems of Materials Science, NAS of Ukraine

Mechanosynthesis of disperse composite powders based on TiB₂ZrO₂MeSi₂ and TiB₂ZrO₂MeC systems (where Me – Ti, Nb)

Iryna Kud, Larysa Krushynska, Roman Medyukh, Ostap Zgalat-Lozynskyy, Roman Lytvyn

Frantsevich Institute for Problems in Materials Science, NAS of Ukraine

The Role of Cell Collapse Mechanism in Mechanical Performance of Aluminium Foam Fabricated by Melt Processing

Alexandra Byakova¹, Svyatoslav Gnyloskurenko², Andrey Vlasov¹, Yan Yevych¹, Nikolay Semenov¹

¹*Frantsevich Institute for Problems of Materials Science, NAS of Ukraine*

²*Physical-Technological Institute of Metals and Alloys, NAS of Ukraine*

Synthesis of ordered perovskite-type LaLuO₃ nanopowders

Yuriy Yurchenko, Oksana Korniienko, Marina Zamula, Tamara Tomila, Oleksandr Shyrokov

¹*Frantsevich Institute for Problems of Materials Science, NAS of Ukraine*

Hydroxyapatite-based composites modified by magnetite and chitosan as a magnetic material for medical application

Anna Synytsia¹, Olena Sych^{1,2}, Anatolii Perekos³, Tatiana Babutina¹, Iryna Kondratenko¹

¹*Frantsevich Institute for Problems of Materials Science, NAS of Ukraine*

²*Institute of High Pressure Physics "Unipress", PAS*

³*Kurdyumov Institute for Metal Physics, NAS of Ukraine*

Destruction of spacecraft polymer films under exposure to high-velocity atomic oxygen flows

Valentin Shuvalov, Nikolai Gorev, Galina Kochubei, Yuri Kuchugurnyi, Nikolai Pismennyi, Nikolai Tokmak

Institute of Technical Mechanics, NAS of Ukraine and the State Space Agency of Ukraine

Wear peculiarities of in situ Ti-Si-Sn composites with reduced elastic modulus under different friction conditions

Iryna Gorna, Katerina Valuisa, Konstantyn Grinkevych, Olexandr Koval, Sergiy Firstov

Frantsevich Institute for Problems of Materials Science, NAS of Ukraine

Influence of the dispersed filler on the physical and mechanical properties of the epoxy composite

Gennadiy Bagluk¹, Oksana Baranovska¹, Andriy Buketov², Oleksandr Saponov², Oleksandr Bykov¹

¹*Frantsevich Institute for Problems of Materials Science, NAS of Ukraine*

²*Kherson State Maritime Academy, Ukraine*

Temperature Dependence of Hardness and Plasticity of Aluminum Matrix Composites (AMC) of the Al-Fe-Cr System

Svitlana Chugunova, Mykola Iefimov, Oleksii Golubenko, Nataliia Zakharova, Irina Goncharova,
Oleksandr Lukianov

Frantsevich Institute for Problems of Materials Science, NAS of Ukraine

Electrical conductivity of composite materials based on n-InSe and thermally expanded graphite

Volodymyr Boledzyuk, Kamiskii Vasyl, Tkachuk Ivan, Tovarnitskii Mircha, Zaslonkin Andriy

Frantsevych Institute for Problems of Materials Science, NAS of Ukraine, Chernivtsi Branch

Structure and thermal stability of Ga-In-Sn matrix nanocomposites

Ihor Shtablavyi, Yuriy Kulyk, Mykhailo Klepach, Yuriy Plevachuk, Stepan Mudry

Ivan Franko National University of Lviv, Ukraine

Microstructure and physico-mechanical properties of titanium-based porous composites for anode substrates of solid oxide fuel cells

Viktoriya Podhurska¹, Dmytro Brodnikovskiy², Mykola Gadzyra², Bogdan Vasylyv¹, Yehor Brodnikovskiy²,
Orest Ostash¹, Oleksandr Vasylyev², Bora Timurkutluk³

¹*Karpenko Physico-Mechanical Institute, NAS of Ukraine*

²*Frantsevich Institute for Problems of Materials Science, NAS of Ukraine*

³*Nigde Omer Halisdemir University, Turkey*

Effect of free carbon content in the WC@C electrolytic composite on its catalytic characteristics in the hydrogen evolution reaction

Serhii Kuleshov¹, Inessa Novoselova¹, Anatolii Omel'chuk¹, Valerii Bykov²

¹*V.I. Vernadsky Institute of General and Inorganic Chemistry, Ukraine*

²*Institute of Physics, NAS of Ukraine*

Mechanical and tribological properties of powdered aluminum-matrix composites obtained by hot plastic deformation

Stepan Kyryliuk, Yevheniia Kyryliuk, Yulia Shishkina

Frantsevich Institute for Problems in Materials Science, NAS of Ukraine

Phase equilibria in the ZrO₂-HfO₂-Eu₂O₃ system at 1700°C

Yuriy Yurchenko¹, Oksana Korniienko¹, Sergey Korichev¹, Anatolii Samelyuk¹, Marina Zamula¹, Larisa Spasonova²

¹*Frantsevich Institute for Problems of Materials Science, NAS of Ukraine*

²*National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"*

Effect of cold isostatic pressing pressure of 300 MPa on transverse rupture strength of sintered WC-3 wt.%Co and WC-15 wt.%Co cemented carbides

Gennadiy Akimov¹, Ihor Andreev², Vitalii Sheremet³, Iryna Trosnikova³

¹*Donetsk institute for Physics and Engineering named after O.O. Galkin, NAS of Ukraine*

²*V. Bakul Institute for Superhard Materials, NAS of Ukraine*

³*National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"*

Phase equilibria in the binary CeO₂-Nd₂O₃ system at a temperature of 1500°C

Serhii Yushkevych¹, Oksana Kornienko¹, Olena Olifan¹, Olesya Pavlenko¹, Anatolii Sameljuk¹, Irina Subota²

¹*Institute for Problems in Material Science, NAS of Ukraine*

²*National Technical University of Ukraine "Ihor Sikorsky Kyiv Polytechnic Institute"*

The influence of chemical-thermal treatment on the chemical composition and stability of the mechanical and electrical properties of the composite material based on Ti-Si-C

Dmytro Brodnikovskiy¹, Viktoria Podhurska², Yaroslav Tymoshenko¹, Serhy Tkachenko³, Oleksander Myslyvchenko¹, Mykyta Pinchuk¹, Ladislav Čelko⁴, Bora Timurkutluk⁵, Orest Ostash², Oleksander Vasylyev¹, Bogdan Vasylyv², Ihor Polishko¹, Natalia Lysunenko¹, Yegor Brodnikovskiy¹, Mykola Gadzyra¹

¹*Frantsevich Institute for Problems of Materials Science, NAS of Ukraine*

²*Karpenko Physico-Mechanical Institute, NAS of Ukraine*

³*Central European Institute of Technology, Brno University of Technology, Czech Republic*

⁴*Institute of Plasma Physics of ASCR, Czech Republic*

⁵*Nigde Omer Halisdemir University, Turkey*

Destruction of spacecraft polymer films under exposure to high-velocity atomic oxygen flows

Valentin Shuvalov, Nikolai Gorev, Galina Kochubei, Yuri Kuchugurnyi, Nikolai Pismennyi, Nikolai Tokmak
Institute of Technical Mechanics, NAS of Ukraine and the State Space Agency of Ukraine

Cermet powders based on TiAl intermetallide for thermal spraying

Oleksii Burlachenko¹, Nataliia Vigilianska¹, Cezary Senderowski²

¹*E.O. Paton Electric Welding Institute, NAS of Ukraine*

²*Warsaw University of Technology, Poland*

Study of the influence of titanium modification with carbon-containing powder master alloys on tribological properties

Nadiya Davydchuk, Mykola Gadzyra, Yaroslav Tymoshenko, Mykyta Pinchuk

Frantsevich Institute for Problems of Materials Science, NAS of Ukraine

Isothermal section of the Al₂O₃–TiO₂–La₂O₃ phase diagram at 1400 °C

Yana Tyshchenko, Sergij Lakiza, Victor Redko, Elena Dudnik

Frantsevich Institute for Problems of Materials Science, NAS of Ukraine

Increasing the efficiency of separation by surface imperfection of low-strength diamond powders

Halyna Ilnytska, Olga Loginova, Valerii Lavrinenko, Volodymyr Smokvyna, Iryna Zaitseva

Bakul Institute for Superhard Materials, NAS of Ukraine

Structure and properties of (Ti, Cr)B₂–SiC composite materials

Volodymyr Konoval, Oleksandr Umanskyi, Iryna Martsenyuk, Konstyantyn Gal'tsov, Oleksii Bondarenko, Viktoriia Chernatska, Serhii Karpenko

Frantsevich Institute for Problems of Materials Science, NAS of Ukraine

A CaTiO₃ perovskite - TiO₂ rutile composite doped with Nb

Anatoliy Smolar, Anatoliy Burkhan, Alexander Bloschanevich, Anatoliy Stegnyy, Valeriy Bekenev, Artur Stepanenko, Volodymyr Khomenko, Oleksandr Vasiliev

Frantsevich Institute for Problems of Materials Science, NAS of Ukraine

The impact of heating rates on the MAX-phase Ti₃AlC₂ formation

Inna Kirian, Alexander Rud, Andrey Lakhnik

G. V. Kurdyumov Institute for Metal Physics, NAS of Ukraine

New composite materials for negative electrodes of Ni-MH batteries

Khrystyna Vlad, Yuriy Verbovytskyy, Ihor Zavaliy, Yuriy Dubov

Karpenko Physico-Mechanical Institute, NAS of Ukraine

Composite h-BN–magnetite nanopowders for cancer therapy application

Levan Chkhartishvili^{1,2}, Shio Makatsaria^{1,3}, Otar Tsagareishvili², Shalva Kekutia¹, Jano Markhulia¹, Vladimir Mikelashvili¹, Natia Barbakadze⁴, Maia Japaridze⁴, Roin Chedia^{2,4}

¹*Georgian Technical University*

²*Ferdinand Tavadze Metallurgy and Materials Science Institute, Georgia*

³*Deltamed Georgia – Official Representatives of Siemens Healthcare Diagnostics in Georgia*

⁴*Ivane Javakhishvili Tbilisi State University, Georgia*

Formation and properties of layered Ti-TiB/Al composite material

Yana Smirnova, Iryna Huriia, Petro Loboda

National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute”

Influence of the composition of a ZrO₂-based solid solution on low-temperature phase stability system materials ZrO₂-Y₂O₃-CeO₂

Irina Marek¹, Olena Dudnik¹, Vasiliy Vynar², Viktor Redko¹, Oleksij Ruban¹

¹*Frantsevich Institute of Problems of Materials Science, NAS of Ukraine*

²*Karpenko Physico-Mechanical Institute, NAS of Ukraine*

Percolation simulation for conductor/insulator materials during SPS considering porosity

Bohdan Pokhylko, Vladyslav Kushnir, Andrey Ragulya

Frantsevich Institute for Problems in Materials Science, NAS of Ukraine

Hydrogen generation by hydrolysis of MgH₂ – Ti-based IMC – C composites

Vasyl Berezovets, Oleksandr Kononiuk, Ihor Zavaliiy, Andriy Kytsya, Ihor Borukh

Karpenko Physico-Mechanical Institute, NAS of Ukraine

Solid solutions of aluminum in boron carbide as means to modify its mechanical properties

Valerii Muratov, Oleksandr Vasiliev, Viktor Garbuz, Petro Mazur, Tetyana Khomko

Frantsevich Institute for Problems of Materials Science, NAS of Ukraine

CVD synthesis and morphology of TiC micro- and nanofibers

Peter Sylenko, Alex Pokropivny, Denis Andrushchenko, Mykola Yakubiv, Igor Okun, Yuriy Solonin

Frantsevich Institute for Problems of Materials Science, NAS of Ukraine

Thermal stability of powdered TiN and mixtures BaO-TiN(1:1)

Dmytro Mishchenko

E.O. Paton Institute of Electric Welding, NAS of Ukraine

Features of the formation of solid solutions based on ZrO₂ in the presence of complex stabilizer

Alina Makudera¹, Sergij Lakiza², Olena Dudnik¹, Viktor Red'ko¹, Tatiana Babutina¹

¹*Frantsevich Institute for Problems of Materials Science, NAS of Ukraine*

²*Center of Excellence in Nanophotonics, Advanced Materials and New Technologies Based on Crystal Growth, Poland*

POSTER SESSION
Ceramics and Glasses
Thursday, October 5
13:00-15:30

Influence of lead oxide addition on the electrical characteristics of Tin oxide based ceramic varistors

Alexei Gaponov

Oles Honchar Dnipro National University, Ukraine

Synthesis of alkaline nitride glasses and their physical and chemical properties

Eugen Pashchenko, Denys Savchenko, Svitlana Kukharenko, Sergiy Skorokhod, Roman Kurganov

Bakul Institute for Superhard Materials, NAS of Ukraine

Study of silicon carbide and silicon nitride ceramics by the method of acoustic emission

Victor Goncharuk, Irina Goncharova, Vadim Tsyvilitsin, Mykola Iefimov

Frantsevich Institute for Problems of Materials Science, NAS of Ukraine

Mechanical and dielectric properties of ceramics based on Si₃N₄ produced by spark plasma sintering

Maryna Zamula, Valerii Kolesnichenko, Nadiya Tyschenko, Oleksandr Shyrokov, Artur Stepanenko, Hanna Borodianska, Andriy Ragulya

Frantsevich Institute for Problems of Materials Science, NAS of Ukraine

3D printing of the ceramic materials based on Mo_{0.9}Cr_{0.1}Si₂ by Robocasting technique

Vladyslav Naumenko, Ostap Zgalat-Lozynskyy, Dmytro Zyatkevych

Frantsevich Institute for Problems of Material Science, NAS of Ukraine

Scale particles from rocks - fillers for polymer composite materials

Iryna Diduk, Olga Jashchenko, Kateryna Krasnikova

Frantsevich Institute for Problems of Materials Science, NAS of Ukraine

On the methodology of generalization of knowledge about the structure formation of ceramic materials to implement it in technology

Galyna Oleynik, Andrii Kotko

Frantsevych Institute for Problems of Material Sciences, NAS of Ukraine

Structure formation of ultra dispersed detonation diamond

Galyna Oleynik, Andrii Kotko, Yurii Solonin

Frantsevych Institute for Problems of Material Sciences, NAS of Ukraine

Influence of lead oxide addition on the electrical characteristics of tin oxide based ceramic varistors

Alexei Gaponov

Oles Honchar Dnipro National University, Ukraine

Glass and fibers based on silicate-hafnium and silicate-boron-hafnium systems

Iryna Diduk, Yurii Chuvashov, Olga Yashchenko, Nataliya Koshelenko

Frantsevich Institute for Problems of Materials Science, NAS of Ukraine

The influence of aluminum oxide on the physical and mechanical properties of silicate fibers

Yurii Chuvashov, Olga Yashchenko, Iryna Diduk, Nataliya Koshelenko

Frantsevich Institute for Problems of Materials Science, NAS of Ukraine

Increased wear resistance of end seal rings due to the use of improved ceramic material based on silicon carbide

Ihor Hnylytsia

Ivano-Frankivsk National Technical University of Oil and Gas, Ukraine

Preparation of Ti_3SiC_2 MAX phases using high-energy ball milling of the initial components in a planetary mill

Maria Savyak, Dmytro Korablov, Alla Kopan, Yuriy Solonin

Frantsevich Institute for Problems of Materials Science, NAS of Ukraine

Phase diagram of the Fe_7Se_8 – Bi_2Se_3 system

Serhii Lakiza, Kingshuk Bandopadhyay, Krzysztof Markus, Yaroslav Korol

Center of Excellence in Nanophotonics, Advanced Materials and New Technologies Based on Crystal Growth, Poland

Structural and mechanical properties of SiC-rich by-products of the metal grade Si (MG-Si) process

Vira Bovda^{1,2}, Thomas Hafner³, Joans Hafner³, Frank Kimm³, Oleksandr Bovda², Oleksandr Kuprin², Anatoliy Pikalov², Viktoria Podhurska⁴, Bohdan Vasylyv⁴, Ihor Vorona⁵

¹*MFG Metall- und Ferrolegierungsgesellschaft mbH, Germany*

²*National Scientific Centre Kharkiv Institute of Physics and Technology, Ukraine*

³*MFG Metall- und Ferrolegierungsgesellschaft mbH, Germany*

⁴*Karpenko Physical-Mechanical Institute, NAS of Ukraine*

⁵*Physico-technological Institute of Metals and Alloys, NAS of Ukraine*

Ground states in B_4C -Al system

Oleksandr Vasiliev¹, Vladyslav Bilyi^{1,2}, Yaroslav Zaulychnyy², Valerii Kartuzov¹

¹*Frantsevich Institute for Problems of Materials Science, NAS of Ukraine*

²*National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"*

POSTER SESSION
Films and Coatings
Friday, October 6
10:50-13:00

Characterization of the Ti-Zr-Mo-C coatings deposited by magnetron sputtering

Volodymyr Ivashchenko^{1,2}, Alexei Onoprienko¹, Petro Skrynskyi¹, Aleksandr Pogrebnjak^{3,2}, Oleksii Sinelnichenko¹, Andrii Kovalchenko¹, Olena Olifan¹, Oleksandr Marchuk¹

¹*Frantsevich Institute for Problems of Materials Sciences, NAS of Ukraine*

²*Faculty of Material Science and Technology in Trnava, Slovak University of Technology in Bratislava, Slovakia*

³*Sumy State University, Ukraine*

Sputtering of Fe with addition of Mo or W by nitrogen ions: Monte Carlo simulation

Anatoly Kuzmichev, Michailo Melnichenko

National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Lifetime improvement of contact brush units of automotive power machines

Andrii Dovhal

National Aviation University, Ukraine

Strength and crack resistance structural criteria of composite coatings produced by the method of multi-chamber detonation spraying

Volodymyr Korzhyk¹, Olena Berdnikova¹, Petro Stukhliak², Olga Kushnarova³, Junjun Zhao¹, Ihor Skachkov¹

¹*E. O. Paton Scientific Research Institute of Welding Technologies named in Zhejiang Province, China*

²*Ivan Pulyu Ternopil National Technical University, Ukraine*

³*E.O. Paton Electric Welding Institute, NAS of Ukraine*

Analyzing the methods for electrospark alloying with the use of multi-component special process media

Oksana Gaponova¹, Viacheslav Tarelnyk², Nataliia Tarelnyk², Piotr Kurp³

¹*Sumy State University, Ukraine*

²*Sumy National Agrarian University, Ukraine*

³*Kielce University of Technology, Poland*

Modeling of gas-discharge processes and formation of diffusion discrete-matrix structure of tube inner surface by ion-plasma nitriding

Ihor Smyrnov, Anatolii Kuzmichev, Leonid Tsybulsky, Andrii Chorny, Volodymyr Lysak

National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Thermophysical properties of lanthanide di-titanates

Alla Kopan', Mykola Gorbachuk, Sergij Lakiza, Alina Makudera, Dmytro Korablov

Frantsevich Institute for Problems of Materials Science, NAS of Ukraine

The surface layers formation in Fe-alloys by electric-spark alloying and carbonitriding

Galina Lobachova, [Ievgen Ivashchenko](#)

National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Tribology properties of Ti₂AlC MAX phase-based coatings deposited by vacuum arc method

Viktoriya Podhurska¹, [Olexander Kuprin](#)², Roman Chepil¹, Orest Ostash¹, Tetiana Prikhna³, Volodymyr Sverdun³, Margaryta Bortnitskaya², Igor Kolodiy², Vitalii Belous²

¹*Karpenko Physico-Mechanical Institute of NASU, Ukraine*

²*National Science Center "Kharkiv Institute of Physics and Technology" of NASU, Ukraine*

³*Bakul Institute for Superhard Materials, NAS of Ukraine*

Surface laser boronizing of maraging steel parts manufactured by selective laser melting

[Kęstutis Bučelis](#), Jelena Škamat, Olegas Černašėjus

Vilnius Gediminas Technical University, Lithuania

Morphology and properties of nickel deposits obtained by electrocrystallization in a weak induction magnetic field

Stanislav Kovalyov, Oleg Girin, Volodymyr Ovcharenko, [Vladyslava Mishchenko](#)

Ukrainian State University of Chemical Technology, Ukraine

Influence of Ni content on microstructure and microhardness of nickel-graphite abrasion resistant seal coatings produced by plasma spraying

Oleksandr Umanskyi¹, [Oleksiy Kushev](#)¹, Maryna Storozhenko^{1,2}, Iryna Martsenyuk¹, Oleksandr Terentiev¹, Valery Brazhevskyi³, Ruslan Kostyuniuk⁴, Vitaliy Krasovskyy¹, Oleksandr Chernyshov³, Tetyana Mosina¹

¹*Frantsevych Institute for Problems of Material Sciences, NAS of Ukraine*

²*AC2T Research GmbH, Austria*

The structure of boride diffusion coatings produced on selected grades of structural steels

[Marek Goral](#), Kamil Ochał, Barbara Koscielniak, Tadeusz Kubaszek, Kamil Gancarczyk, Andrzej Gradzik, Adrianna Przybyło, Jakub Jopek, Magdalena Mokrzycka, Marcin Drajewicz

Rzeszow University of Technology, Poland

Growth kinetics of a silicon-modified aluminide coating on a TiAl alloy

[Mateusz Woźniak](#), Marek Góral, Barbara Koscielniak, Kamil Gancarczyk

Rzeszow University of Technology, Poland

The formation of Hf-modified aluminide coatings on TiAl intermetallics

[Mateusz Woźniak](#), Barbara Kościelniak, Kamil Gancarczyk, Marek Goral

Rzeszow University of Technology, Poland

The influence of plasma spraying parameters on microstructure and porosity of bronze-polyester coatings for plain bearings applications

Marek Góral, Tadeusz Kubaszek, Barbara Koscielniak

Rzeszow University of Technology, Poland

Microstructure and wear behavior of plasma sprayed (Ti,Cr)C-Ni composite coatings

Maryna Storozhenko^{1,2}, Oleksandr Umanskyi¹, Oleksiy Melnyk³, Oleksandr Terentiev¹, Tetiana Chevychelova¹, Viktor Varchenko¹, Oleksandr Koval¹, Valeriy Brazhevsky⁴, Oleksandr Chernyshov⁴

¹*Frantsevich Institute for Problems of Materials Science, NAS of Ukraine*

²*AC2T Research GmbH, Austria*

³*VICADO Ltd, Ukraine*

⁴*Composite Systems Ltd, Ukraine*