HighMatTech

Program

8th International Materials Science Conference HighMatTech-2023

October 2-6, 2023
Kyiv, Ukraine

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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	09:00-90:30	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	Symposium: Composite Materials Oral Session
	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	Symposium: Ceramics and Glasses Oral Session
	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	Symposium: Films and Coatings Oral session
	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 Okhay[1], Oleksandr Tkach[2]
[1]TEMA- Center for Mechanical Technology and Automation, Department of Mechanical Engineering, University of Aveiro, Portugal
[2]CICECO – 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 Derhachov[1], Vasyl Moiseienko[1], Bilal Abu Sal[2]
[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 Clluster 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 Romaka[3], Irena Janotova[2], Peter P. Svec[2], Rada Novakovic[4], Viktor Poverzhuk[1]

[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 Kriklya[1], Kostyantyn Korniyenko[1], Vasyl' Petyukh[1], Irina Tikhonova[1], Anatoliy Samelyuk[1], Viktor Sobolev[2], Petro Levchenko[1]

[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 Korniyenko[1], Konstantin Meleshevich[1], Anatoliy Samelyuk[1], Viktor Sobolev[2], Lyudmila Kriklya[1]

[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 Svec[1], Irena Janotova[1], Dusan Janickovic[1], Branislav Kunca[2], Jozef Marcin[2], Ivan Skorvanek[2], 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 Agraval[1], Mikhail Turchanin[1], Liya Dreval[1,2], Anna Vodopyanova[1]
[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 Student[1], Ivan Tsybailo[1]
[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 Tsyrulnyk, 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 Prystash [1], Andrii Torpakov [1], Eduard Taftai [1], Olha Syzonenko [1], Rasa Kandrotaitė Janutienė [2], Yevhen Lypian [1]
[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/Al_2O3, Co/SiO_2 and Co/TiO_2 ferromagnetic nanocomposites in the low-temperature region**
Oleksii Baibara[1], Mykhailo Radchenko[1], Arsenii Ievtushenko[1], Yaroslav Stelmakh[2], Larysa Krushynska[2], Tatiana Zajarniuk[3], Tomashz Story[3]
[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 ºC for microfilled epoxy-composites. Examples of filling by silicon carbide, titanium nitride, gypsum G5 and Cement M400**
Dmitro Starokadomsky[1], 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**

Symposium: Composite Materials
Poster Session

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 Prikhna[1], Jrest Ostash[2], Olexander Kuprin[3], Viktoria Podhurska[2], Tetiana Serbenyuk[1], Volodymyr Sverdun[1], Bernd Büchner[4], Julia Hufenbach[4], Semyon Ponomaryov[5], Myroslav Karpets[6], Anatoly Marchenko[1]

[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 ZrO_2 concentration on the optical properties of Y_2O_3 transparent ceramics**

Dariia Chernomorets[1,2], Jan Hostaša[2], Laura Esposito[2]

[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 Markevich[1], Tetyana Stara[1], Yuliia Polishchuk[1], Semyon Ponomaryov[1], Kostiantin Kozoriz[1], Oleksandr Melnichuk[2], Lyudmyla Melnichuk[2], Nadiia Korsunska[1], Lyudmyla Borkovska[1], 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 Ulianchych[1], Sergey Firstov[1], Volodymyr Kolomiiets'[1], Oksana Koriak[1], Larysa Strilets[1], Mykhailo Rublenko[2], Tetiana Todosiuk[2]

[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 ZrB_2- and HfB_2– based materials without and with SiC and Si_3N_4 additions
Tetiana Prikhna[1], Anastasiya Lokatkina[1], Pavlo Barvitskyi[1], Myroslav Karpets[2], Viktor Moshchil[1], Semyon Ponomarov[3], Johen Werner[4], Bernd Büchner[4], Richard Haber[5], Zeynep Ayguzer Yasar[5], Branko Matovich[6], Robert Kluge[4], Anatoly Bondar[7], Olexander Borymskyi[1], Leonid Devin[1]
[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 $AlMgB_{14}$-related orthorhombic boron carbide phases from first principles: structure and mechanical properties
Oleksiy Bystrenko[1,2], Jingxian Zhang[2,3], Dong Fangdong[4], 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 Imbirovych[1], Krzystof Jan Kurdzydlowski[2], Oleksandr Povstyanoy[1], Valentyna Tkachuk[1]
[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 Ekhlasiosgouei, 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 Zinchenko[1], Igor Magunov[1], Olga Mozkova[2], Boris Gorshtein[2]
[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 Khovavko[1], Denis Filonenko[1], Alexey Svyatenko[1], Andriy Nebesnyi[1], Anastasiya Kolesnichenko[2], 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 TiO_2-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 SiO_2/TiO_2

Yurii Yavorskyi[1,2], Myroslav Karpets[1,2], Andrii Hrubiak[3], 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 MoS_2/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 Sliesarenko[1], Leonid Levchuk[1], Maryna Natalenko[1], Katerina Graivoronska[2], Ruslan Shkarban[1], Tetyana Verbytska[1], Iurii Makogon[1], Sergiy Sidorenko[1]
[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]Prydniprovska 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 Pedan[1], Pavlo Makushko[1,2], Oleksandr Dubikovskyi[1,3], Andrii Bodnaruk[1,4], Andrii Burmak[1], Denys Makarov[2], Igor Vladymyrskyi[1]

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

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

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

[4]Institute of Physics, NAS of Ukraine

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

Roman Malysh[1], Andrii Korotun[1,2], Igor Titov[3]

[1]National University Zaporizhzhia Politechnic, Ukraine

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

[3]UAD Systems, Ukraine

Plasmons in a chain of prolate metallic nanospheroids

Maksym Maniuk[1], Andrii Korotun[1,2], Valery Kurbatsky[1], Igor Titov[3]

[1]National University Zaporizhzhia Politechnic, Ukraine

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

[3]UAD Systems, Ukraine

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

Nazar Pavlyshche[1], Andrii Korotun[1,2], Valery Kurbatsky[1]

[1]National University "Zaporizhzhia Politechnic", Ukraine

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

Intrinsic role of Cu^{+} and In^{3+} cations in the nature of ferrielectric ordering in $CuInP_2S_6$ 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 Pokropivny[1], Sergey Maloshtan[2], Anatoly Smolyar[2], Peter Sylenko[1], Yurii Solonin[1]

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

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

Modeling of photovoltaic characteristics of a TiO_2/porous-Si/Si-based heterojunction solar cell

Alena Dyadenchuk

Dmytro Motornyi Tavria State Agrotechnological University, Ukraine

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

Surface hardening of Ti_6Al_4V alloy using high-frequency mechanical impacts

Svitlana Voloshko[1], Andrii Burmak[1], Bogdan Mordyuk[1,2], Taras Krasovskyi[3], Nataliya Franchik[1], Myhailo Vasylyev[2]

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

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

[3]Kyiv Academic University, Ukraine

Bioresorbable powder materials based on Mg-Mn-Zn

Serhii Teslia, Tetiana Soloviova, Mykhailo Vterkovskyi, Vitalii Sheremet, Petro Loboda

Igor Sikorsky Kyiv Polytechnic Institute, Ukraine

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

Natalia Usenko[1], Michael Ivanov[2], Natalia Kotova[1]

[1]Taras Shevchenko National University, Ukraine

[2]Frantsevich 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 Biedunkova[1]

[1]National University of Water and Environmental Engineering, Ukraine

[2]Rivne NPP, Ukraine

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

Viktor Holovko[1], Olha Shtofel[1,2], Iryna Krasikova[3], Igor Krasikov[3]

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

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

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

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

Natalia Kotova[1], Natalia Usenko[1], Michael Ivanov[2]

[1]Taras Shevchenko National University, Department of Chemistry, Ukraine

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

Electrochemical studies of the dental implants from titanium and titanium alloys

Victor Talash[1], Yuliia Rudenko[1], Valerii Nespryadko[2], Valerii Los[2], Maskim Pavlenko[3], Valerii V. Los[3]

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

[2]Bogomolets National Medical University, Ukraine

[3]Shupyk 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 Benlamnouar[1], Mohamed Oubelkacem Azzoug[2], Tahar Saadi[1], Nabil Bensaid[1], Riad Badji[1], 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

Vitalyi Krasovskyy, Nataliia Krasovskaya
Frantsevitch Institute for Problems of Materials Science, NAS of Ukraine

Structure and properties of liquid quenched $Al_4CoCrCuFeNi$ 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 Lavrys[1], Iryna Pohrelyuk[1], Dmytro Savvakin[2], Khrystyna Shliakhetka[3], Mariia-Olena Danyliak[1]
[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 CoCrFeNiMn1-x alloys by the powder metallurgy method and their mechanical properties.

Maria Saviak[1], Angel Vicente Escuder[2], Elizaveta Klytskina[2], Vicente Amigó Borrás[2]
[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 Mikhailov[1], Yevgenii Shtefan[2], Oleg Mikhailov[1]
[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.

Oleksanr Smolyakov[1], Michal Strach[2], Tetiana Dmitrenko[2]
[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 surfase 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 Ovsiannikova, 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 Bensaid, Mohamed Farid Benlamnouar, 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 TiO_2-Ag for viruses remediation
Maksym Zahornyi[1], Olena Lavrynenko[1], Nadya Tyschenko[1], Andrey Ragulya[1], Olga Povnitsa[2], Liubov Artiukh[2], Svitlana Zahorodnia[2], Arsenii Ievtushenko[1]
[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 Gevorkyan[1], Oksana Morozova[1], Chyshkala Volodymyr[2], Volodymyr Nerubatskyia[1]
[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 Fesenko[1], Vasyl Chasnyk[2], Oksana Kaidash[1]
[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 $TiB220MeSi_2$ and TiB220MeC 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 Byakova[1], Svyatoslav Gnyloskurenko[2], Andrey Vlasov[1], Yan Yevych[1], Nikolay Semenov[1]
[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 $LaLuO_3$ nanopowders
Yuriy Yurchenko, Oksana Korniienko, Marina Zamula, Tamara Tomila, Oleksandr Shyrokov
[1]*Frantsevych 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 Synytsia[1], Olena Sych[1,2], Anatolii Perekos[3], Tatiana Babutina[1], Iryna Kondratenko[1]
[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 Valuiska, 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 Bagluk[1], Oksana Baranovska[1], Andriy Buketov[2], Oleksandr Sapronov[2], Oleksandr Bykov[1]
[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 Podhurska[1], Dmytro Brodnikovskyi[2], Mykola Gadzyra[2], Bogdan Vasyliv[1], Yehor Brodnikovskyi[2], Orest Ostash[1], Oleksandr Vasylyev[2], Bora Timurkutluk[3]
[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 Kuleshov[1], Inessa Novoselova[1], Anatolii Omel'chuk[1], Valerii Bykov[2]
[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 ZrO_2–HfO2–Eu_2O_3 system at 1700°C

Yuriy Yurchenko[1], Oksana Korniienko[1], Sergey Korichev[1], Anatoliy Samelyuk[1], Marina Zamula[1], Larisa Spasonova[2]
[1]*Frantsevich Institute for Problems of Materials Science, NAS of Ukraine*
[2]*2National 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 Akimov[1], Ihor Andreev[2], Vitalii Sheremet[3], Iryna Trosnikova[3]
[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 CeO_2-Nd_2O_3 system at a temperature of 1500°C

Serhii Yushkevych[1], Oksana Kornienko[1], Olena Olifan[1], Olesya Pavlenko[1], Anatoliy Sameljuk[1], Irina Subota[2]
[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 Brodnikovskyi[1], Viktoria Podhurska[2], Yaroslav Tymoshenko[1], Serhy Tkachenko[3], Oleksander Myslyvchenko[1], Mykyta Pinchuk[1], Ladislav Čelko[4], Bora Timurkutluk[5], Orest Ostash[2], Oleksander Vasylyev[1], Bogdan Vasyliv[2], Ihor Polishko[1], Natalia Lysunenko[1], Yegor Brodnikovskyi[1], Mykola Gadzyra[1]
[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 Burlachenko[1], Nataliia Vigilianska[1], Cezary Senderowski[2]
[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)B_2–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 $CaTiO_3$ perovskite - TiO_2 rutile composite doped with Nb
Anatoliy Smolar, Anatoliy Burkhan, Alexander Bloschanevich, Anatoliy Stegniy, 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 Ti_3AlC_2 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 Tsagareishvili[2], Shalva Kekutia[1], Jano Markhulia[1], Vladimer Mikelashvili[1], Natia Barbakadze[4], Maia Japaridze[4], 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 ZrO_2-based solid solution on low-temperature phase stability system materials ZrO_2–$Y2O_3$–CeO_2

Irina Marek[1], Olena Dudnik[1], Vasilij Vynar[2], Viktor Redko[1], Oleksij Ruban[1]

[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 MgH_2 – Ti-based IMC – C composites

Vasyl Berezovets, Oleksandr Kononiuk, Ihor Zavaliy, 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 ZrO_2 in the presence of complex stabilizer

Alina Makudera[1], Sergij Lakiza[2], Olena Dudnik[1], Viktor Red'ko[1], Tatiana Babutina[1]

[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 $Mo_{0.9}Cr_{0.1}Si_2$ 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 Jashchenko, 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 Hafner[3], Joans Hafner[3], Frank Kimm[3], Oleksandr Bovda[2], Oleksandr Kuprin[2], Anatoliy Pikalov[2], Viktoria Podhurska[4], Bohdan Vasyliv[4], Ihor Vorona[5]
[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 Vasiliev[1], Vladyslav Bilyi[1,2], Yaroslav Zaulychnyy[2], Valerii Kartuzov[1]
[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 Onoprienko[1], Petro Skrynskyy[1], Aleksandr Pogrebnjak[3,2], Oleksii Sinelnichenko[1], Andrii Kovalchenko[1], Olena Olifan[1], Oleksandr Marchuk[1]

[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 Korzhyk[1], Olena Berdnikova[1], Petro Stukhliak[2], Olga Kushnarova[3], Junjun Zhao[1], Ihor Skachkov[1]

[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 Gaponova[1], Viacheslav Tarelnyk[2], Nataliia Tarelnyk[2], Piotr Kurp[3]

[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 Chornyi, 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 Ti_2AlC MAX phase-based coatings deposited by vacuum arc method

Viktoriya Podhurska[1], Olexander Kuprin[2], Roman Chepil[1], Orest Ostash[1], Tetiana Prikhna[3], Volodymyr Sverdun[3], Margaryta Bortnitskaya[2], Igor Kolodiy[2], Vitalii Belous[2]
[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 abradable seal coatings produced by plasma spraying

Oleksandr Umanskyi[1], Oleksiy Kuschev[1], Maryna Storozhenko[1,2], Iryna Martsenyuk[1], Oleksandr Terentiev[1], Valery Brazhevskyi[3], Ruslan Kostyunyk[4], Vitalyi Krasovskyy[1], Oleksandr Chernyshov[3], Tetyana Mosina[1]
[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 Umanskyi[1], Oleksiy Melnyk[3], Oleksandr Terentiev[1], Tetiana Chevychelova[1], Viktor Varchenko[1], Oleksandr Koval[1], Valeriy Brazhevsky[4], Oleksandr Chernyshov[4]
[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*