MSSE 2021

CONFERENCE PROGRAM

International Young Scientists Conference on
MATERIALS SCIENCE AND SURFACE ENGINEERING

MSSE2021

Lviv, Ukraine | September 22-24, 2021

Venue
Lviv Art Palace,
17 Mykoly Kopernyka Str, Lviv, Ukraine

S C H E D U L E - A T - A - G L A N C E

TIME	WEDNESDAY September 22, 2021	THURSDAY September 23, 2021	FRIDAY September 24, 2021
09:00 10:00	Participant Registration*	Participant Registration*	
10:00 10:15	Opening Ceremony	Information and Diagnostic Systems	Post-Conference Trip
10:15 11:15	Plenary Session		
11:15 11:30	Coffee Break		
11:30 12:30	Plenary Session	Modern Problems of Materials Science	
12:30 12:45	Group Photo		
12:45 13:30	Lunch		
13:30 15:30	Corrosion Protection of Materials	Modern Problems of Materials Science	
15:30 15:45	Coffee Break		
15:45 17:45	Fracture Mechanics and Strength of Materials	Modern Problems of Materials Science	
18:00 19:00	Lviv Excursion	Closing Ceremony	Free Time
19:00 22:00		Farewell party	

ABOUT OUR INSTITUTE

Karpenko Physico-Mechanical Institute of the National Academy of Sciences of Ukraine was founded in Lviv in 1951. Today it is the largest academic institution in Western Ukraine. The Institute staff consists of about 350 people, including 2 Academicians and 5 Corresponding Members of NAS of Ukraine, more than 40 Doctors of Science, and 100 Doctors of Philosophy.

Over the years, the Institute has become a world-known research center and a leading academic institution in Ukraine in the areas of fracture mechanics and strength of materials, hydrogen materials science, physical and chemical processes during corrosion and protection of materials, non-destructive testing and technical diagnostics.

The theory of adsorption and hydrogen fatigue of steels and the theory of the boundary equilibrium of deformable bodies with crack-like defects are developed in the Institute. A new scientific branch – physical and chemical mechanics of materials – is also developed here, which includes theoretical foundations of fracture and durability of structural materials with cracks under the impact of stresses and/or aggressive environments. This method makes it possible to evaluate the workability and predict the destruction of structural elements. The mathematical theory of diffraction, the theory of signals, and the theory of electric circles have been significantly improved in the Institute. New methods of extraction and processing of information, signal processing and the increase of noise immunity in technical diagnostics, geoscience and remote sensing are offered in the Institute.

The research results of the Institute are presented in about 350 monographs; among them there are fundamental works, such as "Fracture mechanics and strength of materials" (15 volumes) and "Technical diagnostics of materials and constructions" (8 volumes).

The scientific and technical achievements of the Institute were recognized with the State Prizes of the USSR in the field of science and technology (two times), the Awards of the Council of Ministers of the USSR (three times), the State Awards of Ukraine in the field of science and technology (10 times), Personal Awards of the National Academy of Sciences of Ukraine (19 times).

ABOUT LVIV

Lviv (also known as Lwów in Polish, Lemberg in German, Leopolis in Latin) is the largest city in Western Ukraine and well-preserved historic center; it is a UNESCO World Heritage Site.

Named in honour of Leo, the eldest son of Daniel, King of Ruthenia, it was the capital of the Kingdom of Galicia-Volhynia from 1272 to 1349, when it was conquered by King Casimir III the Great who then became known as the King of Poland and Ruthenia. From 1434, it was the regional capital of the Ruthenian Voivodeship in the Kingdom of Poland. In 1772, after the First Partition of Poland, the city became the capital of the Habsburg Kingdom of Galicia and Lodomeria. In 1918, for a short time, it was the capital of the West Ukrainian People's Republic. During the interwar period, the city was the centre of the Lwów Voivodeship in the Second Polish Republic. After the German-Soviet invasion of Poland in 1939, Lviv became part of the Soviet Union; between 1944 and 1946 there was a population exchange between Poland and Soviet Ukraine. In 1991, it became part of independent Ukraine.

Lviv was the centre of the historical regions of Red Ruthenia and Galicia. The city has many industries and institutions of higher education such as Ivan Franko National University and Lviv Polytechnic. Lviv is also the home of many cultural institutions, including The Philharmonic Orchestra and the Lviv Theatre of Opera and Ballet.

Lviv has some achievements you probably did not know about:
Jesuit Garden in Lviv – was the first ever park in the country (built in the second half of XVI century). Today the place is called Ivan Franko Park. ***Apostle*** – the first printed Ukrainian book by Ivan Fedorov was printed in Lviv in 1574. ***The post office in European style*** – the Italian Roberto Bandinelli opened Ukraine's first city post office in Lviv in 1629. ***The first university in the country*** – Lviv Jesuit Academy (now Ivan Franko National University) was founded in 1661 and thus became the first Ukrainian university. ***The first Ukrainian brewery*** – the first brewery in Ukraine was opened in Lviv in 1715. ***Ukraine's first public theater*** – The first professional theater was opened in Lviv in 1776. ***Kerosene lamp*** – It was invented by a Polish inventor and pharmacist Ignacy Łukasiewicz in 1853. ***Ukraine's first railway*** – The length of the track was 97.6 km and it connected Przemyśl (south-east of modern Poland) and Lviv.

WEDNESDAY, SEPTEMBER 22, 2021

09:00 10:00	**PARTICIPANT REGISTRATION**
10:00 12:30	**PLENARY SESSION** Chairs: Academician of the NAS of Ukraine, Prof. **Zinoviy Nazarchuk**, Dr. **Yurii Kaniuk**
10:00 10:15	**OPENING CEREMONY**
10:15 10:45	**EFFECT OF MAGNETIC FIELD APPLIED DURING FUSION WELDING OF DUPLEX 2205 STAINLESS STEEL ON RESISTANCE TO CORROSION FATIGUE CRACKING** **Orest Bilyy** Centre for Corrosion Research Autonomous University of Campeche (Mexico)
10:45 11:15	**EFFECT OF PLASMA AND GAS NITRIDING ON MICROSTRUCTURE OF Ti-6Al-7Nb ALLOY** **Jerzy Morgiel** Institute of Metallurgy and Materials Science (Poland)
11:15 11:30	**COFFEE BREAK**
11:30 12:00	**REAL-TIME IN-SITU ELECTROCHEMICAL TRANSMISSION ELECTRON MICROSCOPY (TEM) TO STUDY MANGANESE SULFIDE INCLUSION DISSOLUTION TRIGGERING PITTING CORROSION IN 304L STAINLESS STEEL** **Danyil Kovalov** University of Virginia (USA)
12:00 12:30	**UKRAINIAN MATERIALS RESEARCH SOCIETY: CURRENT STATE AND VISION FOR THE FUTURE** **Alexander Vasiliev** Ukrainian Materials Research Society (Ukraine)
12:30 12:45	**GROUP PHOTO**
12:45 13:30	**LUNCH**

13:30 15:30	**CORROSION PROTECTION OF MATERIALS** Chair: D.Sc. **Serhii Korniy**
CPM-1	**PITTING RESISTANCE OF AISI 316 STEEL IN 3.5 NaCl SOLUTION AT DIFFERENT ULTRASOUND VIBRATION INTENSITY** **Georgii Vasyliev, Oleg Kuzmenko** National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"
CPM-2	**INVESTIGATION OF THE CORROSIVE GASES YIELD UNDER ACTION OF THERMAL IMPACT ON SOLID CARBON-CONTAINED RAW MATERIAL** **Ruslan Ahaiev, Vasyl Vlasenko, Kateryna Dudlia, Eduard Kliuiev, Dmytro Prytula** Institute of Geotechnical Mechanics named by N. Poljakov of the NAS of Ukraine
CPM-3	**SCTESS-CORROSION CRACKING OF LOW ALLOYED AND LOW CARBON PEPE STEEL UNDER CATHODIC POLARISATION** **Lyudmila Nyrkova, Pavlo Lisovyi, Svitlana Osadchuk, Larysa Goncharenko** E.O. Paton Electric Welding Institute of the NAS of Ukraine
CPM-4	**THE INVESTIGATION OF CORROSION ACTIVITY OF GALVANIC NICKEL DEPOSITS AND THEIR CORROSION PRODUCTS** **Taras Kurochenko, Dmytro Ushchapovskyi, Andriy Kushmiruk, Olha Linyucheva, Raisa Redko** National Technical University of Ukraine «Igor Sikorsky Kyiv Polytechnic Institute»
CPM-5	**STRESS-CORROSION CRACKING OF 17G1S-U STEEL UNDER CATHODIC PROTECTION** **Lyudmila Nyrkova, Serhii Prokopchuk, Larysa Goncharenko, Svitlana Osadchuk** E.O. Paton Electric Welding Institute of the NAS of Ukraine
CPM-6	**CHARACTERIZATION OF SORPTION BY Ca(II), Zn(II) AND Mn(II)-MODIFIED ZEOLITES** **Svitlana Halaichak** Karpenko Physico-Mechanical Institute of the NAS of Ukraine

CPM-7 **INFLUENCE OF MODIFIED ZEOLITE ON CORROSION RESISTANCE OF ALUMINIUM ALLOY**
Mariia-Olena Danyliak, Olha Khlopyk, Myroslav Holovchuk
Karpenko Physico-Mechanical Institute of the NAS of Ukraine

CPM-8 **PROTECTIVE NANOLAYERS ON STEEL FORMED BY "GREEN" VOLATILE COMPOUNDS OF PEACH POMACE EXTRACT AND 3-AMINOPROPYLTRIETHOXYSILANE FROM GAS–VAPOR PHASE**
Victoria Vorobyova
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

CPM-9 **INFLUENCE OF pH ON THE RATE OF DECOLORIZATION OF AZO SOLUTIONS WITH THE PARTICIPATION OF ALUMINUM AMORPHOUS ALLOYS**
Khrystyna Khrushchyk, Nazar Datsiyk, Mariya Lopachak, Oksana Sapatsinska
Ivan Franko National University of Lviv

CPM-10 **CARBON DIOXIDE CORROSION AND MECHANICAL DESTRUCTION OF LOW-ALLOY PIPE STEELS**
Yuliia Maksishko, Myroslav Khoma, Sergiy Korniy, Vasyl Vynar, Bohdan Datsko, Vasyl Ivashkiv, Marian Chuchman
Karpenko Physico-Mechanical Institute of the NAS of Ukraine

CPM-11 **CORROSION AND HYDROGENATION OF 09MN2SI STEEL IN THE ENVIRONMENT WITH DIFFERENT CONCENTRATIONS OF HYDROGEN SULPHIDE**
Marian Chuchman, Vasyl Ivashkiv, Bohdan Datsko
Karpenko Physico-Mechanical Institute of the NAS of Ukraine

15:30 15:45	**COFFEE BREAK**
15:45 18:00	**FRACTURE MECHANICS AND STRENGTH OF MATERIALS** Chair: D.Sc. **Andrii Syrotiuk**

FMSM-1 **SIMULATION OF THE 3-D MODEL OF DURABILITY OF THE FIBRO-CONCRETE BEAM AT A LONG-TERM CLEAN FOLD AND LOCAL CREEP**
Orest Raiter
Karpenko Physico-Mechanical Institute of the NAS of Ukraine

FMSM-2 **DETERMINATION OF THE EFFECTIVE ENERGY SCATTER CHARACTERISTICS IN THE LAYERED COMPOSITES**
Oleh Derkach, Anatoliy Zinkovskii, Kyrylo Savchenko, Yevheniia Onyshchenko
G.S. Pisarenko Institute for Problems of Strength of the NAS of Ukraine

FMSM-3 **TEXTURE, MORPHOLOGY AND PROPERTIES OF COPPER ELECTRODEPOSITS PRODUCED UNDER A WEAK MAGNETIC FIELD**
Vladyslava Mishchenko, Stanislav Kovalyov, Oleg Girin
Ukrainian State University of Chemical Technology

FMSM-4 **EFFECT OF HYDROGEN ON THE FRACTURE ENERGY OF MILD STEEL**
Mykhailo Hrynenko
Karpenko Physico-Mechanical Institute of the NAS of Ukraine

FMSM-5 **POSSIBILITIES OF USING THE PLASTICIZING EFFECT OF HYDROGEN**
Nazar Hembara
Karpenko Physico-Mechanical Institute of the NAS of Ukraine

FMSM-6 **LIGHTWEIGHT ALUMINUM-DODECABORIDE AND BORONCARBIDE-BASED CERAMICS WITH HIGH MECHANICAL PROPERTIES**
Pavlo Barvitskyi[1], Tetiana Prikhna[1], Valeriy Muratov[2], Myroslav Karpets[2], Olexandr Vasiliev[2], Anastasia Lokatkina[1], Olena Prysiazhna[1], Viktor Moshchil[1]
1. Institute for Superhard Materials of the NAS of Ukraine
2. Institute for Problems in Material Science of the NAS of Ukraine

FMSM-7 **DETERMINATION OF THE RESIDUAL LIFE-TIME OF OIL-PIPELINE INTO ACCOUNT STEEL DEGRADATION DURING OPERATION**
Iryna Dolinska
Karpenko Physico-Mechanical Institute of the NAS of Ukraine

FMSM-8 **FATIGUE CRACK GROWTH AT THE SIDE FRAME SURFACE OF THE FREIGHT WAGON BOGIE UNDER IRREGULAR OPERATING LOAD**
Marek Shefer, Yurii Kanyuk, Vira Kovalevych
Karpenko Physico-Mechanical Institute of the NAS of Ukraine

FMSM-9 **POLYMER COMPOSITES FOR 3D PRINTING BASED ON PHOTOPOLYMER RESIN AND GRAPHENE**
Nataliya Oshchapovska, Volodymyr Dutka
Ivan Franko National University of Lviv

FMSM-10 **NUMERICAL SIMULATION OF STATIC PUNCHING TESTS OF THIN-SHEET SPECIMENS**
Roman Kravchuk
G. S. Pisarenko Institute for Problems of Strength of the NAS of Ukraine

FMSM-11 **INVESTIGATION OF THE HIGH-STRENGTH STEEL BEHAVIOR DURING STATIC PUNCHING WITH THE USE OF DIFFERENT TYPES OF PUNCH**
Andriy Kravchuk
G. S. Pisarenko Institute for Problems of Strength of the NAS of Ukraine

FMSM-12 **INFLUENCE OF CORROSION AND CHLORIDE CONTAINING MEDIA ON THE DURABILITY OF HEAT EXCHANGE TUBES OF PGV-1000 STEAM GENERATORS**
Yaroslav Sapuzhak
Karpenko Physico-Mechanical Institute of the NAS of Ukraine

FMSM-13 **INFLUENCE OF MICROSTRUCTURE COMPONENTS ON CRACK GROWTH RESISTANCE IN STEELS**
Andriy Chornenkyi, Myroslav Holovchuk, Ivan Shtoyko
Karpenko Physico-Mechanical Institute of the NAS of Ukraine

FMSM-14 **COMPARISON BETWEEN PLAIN-STRAIN AND PLAIN-STRESS IMPACT MODELLING OF A 7075-T651 ALUMINIUM ALLOY**
Álvaro Frutos[1], Roberta Barragán[1], Rafael Ambriz[1], Moussa Naït-Abdelaziz[2], David Jaramillo[1]
1. Instituto Politécnico Nacional CIITEC-IPN, Cerrada de Cecati S/N Col. Sta. Catarina, Azcapotzalco, Ciudad de México, México. C.P. 02250
2. University of Lille, Unité Mécanique de Lille, Av. Paul Langevin, 59650 Villeneuve d'Ascq, France

18:00 19:00	**LVIV EXCURSION**

THURSDAY, SEPTEMBER 23, 2021

09:00 10:00	**PARTICIPANT REGISTRATION**
09:30 11:15	**INFORMATION AND DIAGNOSTICS SYSTEMS** Chair: D.Sc. **Rostyslav Kosarevych**

IDS-1 **AXIALLY SYMMETRIC SCATTERING OF THE PLANE ACOUSTIC WAVE FROM A SOFT RING**
Victor Lysechko
Karpenko Physico-Mechanical Institute of NAS of Ukraine

IDS-2 **EQUATION FOR MAGNETIC FIELD OF THE CYLINDER WITH DEFECT**
Vasyl Dzhala, Bohdan Horon, Maryan Melnyk, Oksana Семенуук
Karpenko Physico-Mechanical Institute of the NAS of Ukraine

IDS-3 **APPLICATION OF ANALYTICAL SIGNAL AND METHODS OF ANALYSIS OF PERIODICALLY NON-STATIONARY RANDOM PROCESSES FOR DIAGNOSIS OF ROTARY MECHANISMS**
Pavlo Kurapov[1,2], Ihor Javorskyj[1,3], Roman Yuzefovych[1,2]
1. Karpenko Physico-Mechanical Institute of the NAS of Ukraine
2. Lviv Polytechnic National University
3. University of Science and Technology, Institute of Telecommunication and Computer Science, Bydgoszcz, Poland

IDS-4 **APPLICATION OF COVARIANCE PARAMETERS FOR INVESTIGATION OF THE TRIBOCORROSION PROCESS**
Roman Slepko[1], Ihor Javorskyj[1,2], Oleh Lychak[1], Roman Yuzefovych[1,3]
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

IDS-5 **CONCEPTUAL MODEL OF INTELLECTUAL SYSTEM FOR RESEARCH OF SPACE WEATHER PARAMETERS**
Danylo Ivantyshyn
Lviv Polytechnic National University

IDS-6 **THE EXCITATION OF THE HOLLOW TRUNCATED CONICAL PROBE OVER THE CONICAL SCREEN**
Oleksiy Sharabura
Karpenko Physico-Mechanical Institute of the NAS of Ukraine

IDS-7	**DIAGNOSTICS OF WATER RESOURCES BASING ON SPACE AND GROUND-BASED INFORMATION** **Dariya Ivchenko, Mykola Korus, Nataliia Pits, Andrii Yatsenko** Karpenko Physico-Mechanical Institute of the NAS of Ukraine
IDS-8	**DIAGNOSTIC ALGORITHM FOR OPTIMIZATION OF ELECTROPHYSICAL PARAMETERS OF UNDERGROUND METAL CONSTRUCTIONS TAKING INTO ACCOUNT THE QUALITY CRITERION AND THE METHOD OF NEURAL NETWORK** **Vitalii Lozovan** Karpenko Physico-Mechanical Institute of the NAS of Ukraine
11:15 **11:30**	**COFFEE BREAK**
11:30 **12:30**	**MODERN PROBLEMS OF MATERIALS SCIENCE** Chairs: D.Sc. **Halyna Krechkovska,** Dr. **Viktoriya Podhurska**
MPMS-1	**INFLUENCE OF WELDING REGIME ON HYGIENIC CHARACTERISTICS OF WELDING AEROSOL DURING MANUAL ARC WELDING OF COPPER ALLOYS USING COATED ELECTRODES** **Olga Bezushko, Taras Maidanchuk, Olga Goncharova** E.O. Paton Electric Welding Institute of the NAS of Ukraine
MPMS-2	**NEW RESISTIVE MATERIALS BASED ON GLASS-CERAMIC DOPED WITH ULTRAFINE NICKEL AND CHROMIUM BORIDES** **Taras Kovbasiuk[1], Oleh Klymkiv[1], Oleh Kostko[2]** 1. Lviv Polytechnic National University 2. PKVP KREDUV LLC
MPMS-3	**DEVELOPMENT OF BIOPOLYMER PACKAGING FILMS AND TECHNOLOGY OF THEIR ULTRASONIC WELDING** **Viktoriia Talaniuk, Iurzhenko Maksym** E.O. Paton Electric Welding Institute of the NAS of Ukraine
MPMS-4	**EFFECT OF MEDIUM DURING TREATMENT Zr-1%Nb ALLOY ON ITS FATIGUE PROPERTIES** **Vasyl Trush, Serhii Lavrys** Karpenko Physico-Mechanical Institute of the NAS of Ukraine

MPMS-5 **EVALUATION OF CORROSION DURABILITY OF FERRITIC-MARTENSITIC T91 STEEL INTO THE LIQUID LEAD**
Khrystyna Melnyk, Ivan Kukhar
Karpenko Physico-Mechanical Institute of the NAS of Ukraine

MPMS-6 **FORMATION OF HYDROXYAPATITE COATINGS ON PREVIOUS NITRIDED TITANIUM SURFACE**
Oleh Tkachuk, Roman Proskurnyak
Karpenko Physico-Mechanical Institute of the NAS of Ukraine

12:30 13:30	**LUNCH**
13:30 15:30	**MODERN PROBLEMS OF MATERIALS SCIENCE** Chairs: **D.Sc. Halyna Krechkovska,** Dr. **Viktoriya Podhurska**

MPMS-7 **TRIBOLOGICAL PROPERTIES OF Fe-Cr-C-B-Ti HARDFACING BY SELF-SHIELDED FLUX-CORED WIRE ELECTRODE WITH EXOTHERMIC ADDITION CuO-Al**
Bohdan Trembach
Private Joint Stock Company «Novokramatorsky Mashinostroitelny Zavod»

MPMS-8 **HARDENING OF MAGNESIUM ALLOYS DUE TO GALLIUM AND INDIUM DIFFUSION**
Maksym Khokhlov, Julia Khokhlova
E.O. Paton Electric Welding Institute of the NAS of Ukraine

MPMS-9 **CORROSIVE AND TRIBOLOGICAL BEHAVIOR OF COMMERCIALLY PURE TITANIUM PRODUCED BY POWDER METALLURGY**
Khrystyna Shliakhetka, Serhii Lavrys
Karpenko Physico-Mechanical Institute of the NAS of Ukraine

MPMS-10 **EFFECT OF GREEN BODY ANNEALING ON OPTICAL PROPERTIES OF Y_2O_3 CERAMICS**
Anton Balabanov, Roman Yavetskiy, Serhii Parkhomenko, Andrii Doroshenko, Oleksandra Kryzhanovska, Ihor Vorona, Nadiia Safronova, Arsenii Tymoshenko, Daria Chernomorets, Alexander Tolmachev
Institute for Single Crystals of the NAS of Ukraine

MPMS-11 **MODIFYING OF CREEP RESISTANT Al-La-Ni ALLOYS**
Mykhailo Voron
Physico-technological Institute of Metals and Alloys of the NAS of Ukraine

MPMS-12 **PHOTOCATALYTIC MATERIALS BASED ON ZnO-Cd SYSTEM**
Denys Myroniuk[1], Liliia Myroniuk[1], Ivan Shtepliuk[1], Igor Danylenko[2], Olena Olifan[1], Oleksandr Bykov[1], Arsenii Ievtushenko[1]
1. Frantsevich Institute for Problems of Materials Science of the NAS of Ukraine
2. V. Lashkaryov Institute of Semiconductor Physics of the NAS of Ukraine

MPMS-13 **INFLUENCE OF Mg CONTENT ON MORPHOLOGY AND PHOTOCATALYTIC EFFICIENCY OF ZnO-Mg NANOCOMPOSITES**
Liliia Myroniuk, Denys Myroniuk, Vitaly Karpyna, Oleksandr Bykov, Olena Olifan, Arsenii Ievtushenko
Frantsevich Institute for Problems of Materials Science of the NAS of Ukraine

MPMS-14 **THERMODYNAMIC AND PHYSICAL PROPERTIES OF CaF_2-(Al_2O_3-TiO_2-MgO) SLAGS FOR THE ESR OF INCONEL 718**
Ganna Stovpchenko, Liudmyla Lisova, Lev Medovar, Ihor Goncharov
E.O. Paton Electric Welding Institute of the NAS of Ukraine

MPMS-15 **ELECTRON AND PHONON SPECTRA OF CdSe AND CdS CRYSTALS**
Andrii Kashuba[1], Bohdan Andriyevsky[2], Ihor Semkiv[1], Hryhorii Ilchuk[1], Roman Petrus[1], Sofiya Pershyna[1]
1. Lviv Polytechnic National University
2. Koszalin University of Technology

MPMS-16 **ELECTROCHEMICAL MODIFICATION OF SEMICONDUCTOR AND METAL SURFACES BY POLYAMINOTHIAZOLE-GRAPHENE OXIDE NANOCOMPOSITES**
Lidiia Dubenska, Yuliia Horbenko, Olena Aksimentyeva
Ivan Franko National University of Lviv

MPMS-17 **DEPENDENCE OF PROPERTIES OF POWDERS INDUCTION MELTED AND SPINNING ALLOY BASED ON Sm_2Co_{17} FROM GRINDING CONDITIONS**
Olexander Kononiuk
Karpenko Physico-Mechanical Institute of the NAS of Ukraine

15:30 15:45	**COFFEE BREAK**

15:45 17:45	**MODERN PROBLEMS OF MATERIALS SCIENCE** Chairs: **D.Sc. Halyna Krechkovska,** Dr. **Viktoriya Podhurska**

MPMS-18 **COMPLEX MODIFICATION OF CAST ALUMINUM ALLOYS WITH HIGH IRON CONTENT**

Maryna Fon Pruss
Physico-technological Institute of Metals and Alloys of the NAS of Ukraine

MPMS-19 **A FINITE ELEMENT COMPARISON BETWEEN TWO SIZES OF NiTi COMMERCIAL STAPLES, USED IN SCAPHOID FRACTURE FIXATION**

Mahsa Khodabakhsh Majd[1], Mehran Bahrami[2], Alireza Nouri[1], Masoumeh Haghbin Nazarpak[3]
1. Department of Biomedical Engineering, AmirKabir University of Technology (Tehran Polytechnic)
2. Department of Mechanical Engineering, Kashan University
3. New Technologies Research Center, AmirKabir University of Technology (Tehran Polytechnic)

MPMS-20 **STRUCTURAL FEATURES AND TOXICOLOGYCAL PROPERTIES OF TiO_2/Ag and La_2O_3/Ag NANOCOMPOSITES**

Maksym Zahornyi[1], Olena Lavrynenko[1], Nadiia Tyschenko[1], Andriy Ragulya[1], Vasyl Riabovol[2], Tetiana Zinchenko[2]
1. Frantsevich Institute for Problems in Materials Science of the NAS of Ukraine
2. Bogomolets National Medical University

MPMS-21 **INFLUENCE OF POLYMER BLEND MORPHOLOGY ON BEHAVIOR OF SURFACE ENERGY**

Andrii Misiura[1], Yevgen Mamunya[2]
1. Taras Shevchenko National University of Kyiv
2. Institute of Macromolecular Chemistry of the NAS of Ukraine

MPMS-22 **MICROSTRUCTURE AND MECHANICAL PROPERTIES OF HIGH-STRENGTH TITANIUM ALLOYS DETAILS OBTAINED BY WIRE ARC ADDITIVE MANUFACTURING**

Roman Selin, Serhiy Schwab, Marianna Dyman
E.O. Paton Electric Welding Institute of the NAS of Ukraine

MPMS-23 **TITANIUM FLUX-CORED WIRES FOR THE WAAM TECHNOLOGY**

Serhiy Schwab, Roman Selin
E.O. Paton Electric Welding Institute of the NAS of Ukraine

MPMS-24 **CORROSION RESISTANCE OF DISPROSIUM TITANATE POWDERS AND PELLETS IN VVER-1000 COOLANT**

Igor Chernov[1], Valeriy Zuyok[1], Victor Gritsina[1], Nikolay Belash[1], Igor Kolodiy[2]

1. «Nuclear Fuel Cycle» Science and Technology Establishment, National Science Center «Kharkiv Institute of Physics and Technology»
2. Institute of Solid State Physics, Materials Science and Technologies National Science Center «Kharkiv Institute of Physics and Technology»

MPMS-25 **CAVITATION WEAR OF EUROFER 97, Cr18Ni10Ti AND 42HNM ALLOYS**

Hanna Rostova[1], Victor Voyevodin[1,2], Ruslan Vasilenko[1], Igor Kolodiy[1], Vladimir Kovalenko[1], Vladimir Marinin[1], Valeriy Zuyok[1], Alexander Kuprina[1]

1. National Science Center Kharkiv Institute of Physics and Technology
2. V. N. Karazin Kharkiv National University

MPMS-26 **ZnO IN SOLID OXIDE FUEL CELL APPLICATION**

Yevhenii Ostroverkh[1], Leonid Kovalenko[2], Anatoliy Samelyuk[1], Oleksiy Bezdorogev[1], Oleksandr Vasylyev[1], Yurii Solonin[1], Anna Ostroverkh[1]

1. Frantsevich Institute for Problems of Materials Science of the NAS of Ukraine
2. Vernadsky Institute of General and Inorganic Chemistry of the NAS of Ukraine

18:00 19:00	**CLOSING CEREMONY**
19:00 22:00	**FAREWELL PARTY**

FRIDAY, SEPTEMBER 24, 2021

10:00 17:00	**POST-CONFERENCE TRIP**