

## WEDNESDAY, SEPTEMBER 27, 2023

09<sup>00</sup>-10<sup>00</sup>

PARTICIPANT REGISTRATION

10<sup>00</sup>-11<sup>00</sup>

### PLENARY SESSION

Chairs: Academician, Prof. Zinoviy Nazarchuk,  
Dr. Serhii Lavrys

10<sup>00</sup>-10<sup>15</sup>

### OPENING CEREMONY

10<sup>15</sup>-10<sup>40</sup>

### NANO-TUBULAR STRUCTURES FORMED BY THE ANODIC TREATMENT OF TITANIUM ALLOYS

**Prof. Alex Lugovskoy**  
Ariel University (Israel)

10<sup>40</sup>-11<sup>00</sup>

### GROUP PHOTO/COFFEE-BREAK

11<sup>00</sup>-13<sup>00</sup>

### MODERN PROBLEMS OF MATERIALS SCIENCE

Chairs: Prof. Alex Lugovskoy and Dr. Viktoriya Podhurska

MPMS-1

### INFLUENCE OF THE RAW POWDERS TREATMENT PARAMETERS ON THE TRANSMITTANCE OF IR-TRANSPARENT Y<sub>2</sub>O<sub>3</sub> CERAMICS

11<sup>00</sup>-11<sup>15</sup>

**Dariia Chernomorets**<sup>1,2</sup>, **Jan Hostaša**<sup>2</sup>

1. Institute for Single Crystals of NAS of Ukraine
2. CNR ISSMC (former CNR ISTECC)

MPMS-2

### FSW LINEAR SPEED IMPACT ON STRUCTURE AND MECHANICAL PROPERTIES OF AZ31 MAGNESIUM ALLOY JOINTS

11<sup>15</sup>-11<sup>30</sup>

**Maksym Khokhlov**, **Yuliia Khokhlova**, **Anatolii Pokliatskyi**,  
**Valery Kostin**

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

MPMS-3

### INTERACTION CERIUM OXIDE WITH LANTHANUM AND NEODIUM AT 1500°C

11<sup>30</sup>-11<sup>45</sup>

**Sergey Yushkevich**<sup>1</sup>, **Oksana Korniienko**<sup>1</sup>,  
**Olesia Pavlenko**<sup>1</sup>, **Olena Olifan**<sup>1</sup>, **Anatolii Samelyuk**<sup>1</sup>,  
**Irina Subbota**<sup>2</sup>

1. Frantsevich Institute for Problems of Materials Sciences of NAS of Ukraine
2. National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

MPMS-4      **MICROSTRUCTURE AND MECHANICAL PROPERTIES OF LOW COST BETA Ti-2.8Al-5.1Mo-4.9Fe TITANIUM ALLOY WELDED JOINTS**  
11<sup>45</sup>-12<sup>00</sup>

**Roman Selin, Serhiy Schwab**

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

MPMS-5      **DEVELOPMENT AND RESEARCH OF BAINETIC STEELS FOR RAILWAY RAILS**

12<sup>00</sup>-12<sup>15</sup>

**Olexander Babachenko, Ganna Kononenko, Oleksii Merkulov, Rostislav Podolskyi, Elena Safronova**

Iron and Steel Institute of Z.I. Nekrasov of NAS of Ukraine

MPMS-6      **ELECTRON-BEAM CASTING TECHNOLOGY FOR PRODUCTION OF NON-STANDARD TITANIUM ALLOYS FOR EXPERIMENTAL PRODUCTION AND ADDITIVE TECHNOLOGIES**

12<sup>15</sup>-12<sup>30</sup>

**Mykhailo Voron<sup>1</sup>, Serhiy Schwab<sup>2</sup>, Roman Selin<sup>2</sup>**

1. Physico-Technological Institute of Metals and Alloys of NAS of Ukraine

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

**12<sup>30</sup>-13<sup>30</sup>**

**LUNCH**

**13<sup>30</sup>-15<sup>00</sup>**

**MODERN PROBLEMS OF MATERIALS SCIENCE**

Chair: Dr. Viktoriya Podhurska

MPMS-7      **STRUCTURE AND MECHANICAL PROPERTIES OF STEEL STEAM TURBINE ROTOR BLADES AFTER OPERATION**

13<sup>30</sup>-13<sup>45</sup>

**Petro Solovej<sup>1</sup>, Ivan Tsybailo<sup>1</sup>, Sofiia Krechkovska<sup>2</sup>**

1. Karpenko Physico-Mechanical Institute of NAS of Ukraine

2. Lviv Polytechnic National University

MPMS-8      **ANALYSIS OF THE COEFFICIENT OF LINEAR THERMAL EXPANSION OF SEALING COATINGS OF GAS TURBINE ENGINE PARTS**

13<sup>45</sup>-14<sup>00</sup>

**Yelizaveta Fasol, Vadim Kubich**

National University "Zaporizhzhia Polytechnic"

MPMS-9      **MECHANICAL ENERGY ABSORPTION ABILITY OF TITANIUM POROUS STRUCTURES PRODUCED BY POWDER METALLURGY APPROACH**

14<sup>00</sup>-14<sup>15</sup>

**Oleksandr Stasiuk, Denys Oryshych**

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

MPMS-10 **ANALYSIS OF THE EXPERIENCE OF MANUFACTURING METAL STENTS FROM DIFFERENT ALLOYS USING TRADITIONAL AND ADDITIVE TECHNOLOGIES**

14<sup>15</sup>-14<sup>30</sup>

**Serhii Adzhamskyi<sup>1,2</sup>, Ganna Kononenko<sup>1,3</sup>, Rostyslav Podolskyi<sup>1,3</sup>, Elena Safronova<sup>3</sup>, Serhii Baduk<sup>1</sup>**

1. LLC "Additive Laser Technology of Ukraine"

2. Institute of Transport Systems and Technologies of NAS of Ukraine

3. Iron and Steel Institute of Z.I. Nekrasov of NAS of Ukraine

MPMS-11 **MICROSTRUCTURE AND DAMPING PROPERTIES FEATURES OF Ti-Al ALLOYS**

14<sup>30</sup>-14<sup>45</sup>

**Denys Oryshych, Oleksandr Stasiuk**

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

MPMS-12 **RECYCLING OF STEEL USING THE ESR METHOD IN THE CONDITIONS OF LIMITED RESOURCES OF RAW MATERIALS TO PRESERVE THE CHEMICAL COMPOSITION AND PROPERTIES**

14<sup>45</sup>-15<sup>00</sup>

**Yevhen Pedchenko, Yuriy Kostetsky, Ganna Polishko,**

**Volodymyr Petrenko, Volodymyr Zaitsev**

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

15<sup>00</sup>-15<sup>15</sup>

**COFFEE-BREAK**

15<sup>15</sup>-15<sup>45</sup>

**PLENARY SESSION**

Chair: D.Sci. Sergiy Korniy

15<sup>15</sup>-15<sup>45</sup>

**CURRENT STATUS OF RESEARCHES RELATED TO CORROSION ISSUES OF STRUCTURAL MATERIALS IN HEAVY-LIQUID METALS (Pb and Pb-Bi Eutectic) AS APPLIED TO MYRRHA AND SMRs**

**Dr. Valentyn Tsisar**

SCK•CEN Belgian Nuclear Research Centre (Belgium)

15<sup>45</sup>-17<sup>15</sup>

**CORROSION PROTECTION OF MATERIALS**

Chairs: D.Sci. Sergiy Korniy and D.Sci. Oleksiy Narivskiy

CPM-1

15<sup>45</sup>-16<sup>00</sup>

**THE ANTI-CORROSION PERFORMANCES OF THE ECO-FRIENDLY COMPOSITION BASED ON GUM ARABIC AND ZINC ACETATE FOR LOW-ALLOY STEEL**

**Mariia-Olena Danyliak**

Karpenko Physico-Mechanical Institute of NAS of Ukraine

- CPM-2  
16<sup>00</sup>-16<sup>15</sup> **EVALUATING THE CORROSION RESISTANCE OF THE NOVEL AL-ALN METAL MATRIX COMPOSITES PRODUCED OF HOT DIRECT EXTRUSION**  
**Khrystyna Shliakhetka<sup>1</sup>, Martin Balog<sup>1,2</sup>, Erik Simon<sup>1</sup>, Moara Marques De Castro<sup>2</sup>**  
1. Institute of Materials and Machine Mechanics of SAS  
2. Centre for Advanced Materials Application of SAS
- CPM-3  
16<sup>15</sup>-16<sup>30</sup> **ELECTROCHEMICAL PRODUCTION OF NI-MO COATINGS**  
**Svitlana Halaichak, Maxym Danilchuk**  
Karpenko Physico-Mechanical Institute of NAS of Ukraine
- CPM-4  
16<sup>30</sup>-16<sup>45</sup> **PLATE-LIKE HEAT EXCHANGERS RESISTANCE MADE OF ALLOY 06KHN28MDT (SIMILATOR TO AISI904L STEEL) TO CREVICE CORROSION.**  
**Anna Dzhus<sup>1</sup>, Oleksiy Narivskiy<sup>2</sup>, Gennadii Snizhnoi<sup>1</sup>, Tetiana Pulina<sup>1</sup>, Valentyn Snizhnoi<sup>3</sup>, Sergiy Sheyko<sup>3</sup>**  
1. National University "Zaporizhzhia Polytechnic"  
2. "Ukrspetsmash" LLC  
3. Zaporizhzhia National University
- CPM-5  
16<sup>45</sup>-17<sup>00</sup> **ALUMINUM ALLOY CORROSION INHIBITION BY SODIUM ALGINATE IN 0.1% NaCl SOLUTION**  
**Natalia Sobodosh<sup>1</sup>, Andriy Bania<sup>2</sup>**  
1. Karpenko Physico-Mechanical Institute of NAS of Ukraine  
2. Lytvynenko Institute of Physical-Organic Chemistry and Coal Chemistry of NAS of Ukraine
- CPM-6  
17<sup>00</sup>-17<sup>15</sup> **OXIDATION RESISTANCE OF (Zr, Hf)B<sub>2</sub> SOLID SOLUTION**  
**Dmytro Vedel, Petro Mazur**  
Frantsevich Institute for Problems of Materials Science of NAS of Ukraine

17<sup>15</sup>-17<sup>30</sup>

COFFEE-BREAK

17<sup>30</sup>-18<sup>45</sup>

**CORROSION PROTECTION OF MATERIALS**

Chairs: D.Sci. Vasyl Vynar and D.Sci. Ivan Zin

- CPM-7  
17<sup>30</sup>-17<sup>45</sup> **COMPARATIVE STUDIES OF STRESS-CORROSION CRACKING OF LONG-TERM OPERATED MAIN GAS PIPELINE PIPE AND STORAGE PIPE MADE OF X70 STEEL**  
**Yuliya Kharchenko, Lyudmyla Nyrkova, Larysa Goncharenko**  
E.O. Paton Electric Welding Institute of NAS of Ukraine

- CPM-8      **STRESS-CORROSION CRACKING OF PIPE STEEL UNDER THE INFLUENCE OF THIN-FILM CORROSION AT CATHODIC POLARIZATION**  
17<sup>45</sup>-18<sup>00</sup>      **Oleh Bratochkin, Lyudmyla Nyrkova, Svitlana Osadchuk**  
E.O. Paton Electric Welding Institute of NAS of Ukraine
- CPM-9      **RELEASE OF CORROSIVE GASES UNDER ACTION OF THERMAL PROCESSING OF SOLID CARBON-CONTAINED RAW MATERIALS**  
18<sup>00</sup>-18<sup>15</sup>      **Ruslan Ahaiev, Vasyl Vlasenko, Kateryna Dudlia, Eduard Kliuiev**  
M.S. Poliakov Institute of Geotechnical Mechanics of NAS of Ukraine
- CPM-10      **PREDICTION OF THE PROCESS OF CORROSION FORMATION OF STEEL DEGASATION PIPELINES**  
18<sup>15</sup>-18<sup>30</sup>      **Leonid Shyrin, Rostyslav Yehorchenko**  
Dnipro University of Technology
- CPM-11      **METHODS OF IMPROVING THE CORROSION RESISTANCE OF AN ADDITIVELY MANUFACTURED TITANIUM ALLOY**  
18<sup>30</sup>-18<sup>45</sup>      **Serhii Lavrys, Mariia-Olena Danyliak, Taras Gural**  
Karpenko Physico-Mechanical Institute of NAS of Ukraine
- CPM-12      **SYNTESYS OF ANTI-CORROSION PIGMENT BASED ON NANOPOROUS ZEOLITE AND ZINC MONOPHOSPHATE**  
18<sup>45</sup>-19<sup>00</sup>      **Bohdan Datsko**  
Karpenko Physico-Mechanical Institute of NAS of Ukraine

**19<sup>00</sup>**

**WELCOME DINNER**

## THURSDAY, SEPTEMBER 28, 2023

09<sup>00</sup>-10<sup>00</sup>

### PARTICIPANT REGISTRATION

09<sup>30</sup>-11<sup>15</sup>

### MODERN PROBLEMS OF MATERIALS SCIENCE

Chair: D.Sci. Halyna Krechkovska

MPMS-13

09<sup>30</sup>-09<sup>45</sup>

#### REMOVABLE SUBSTRATE FOR SURFACE ENHANCED RAMAN SPECTROSCOPY FOR THE STUDY OF PIGMENTS FROM THE COLONIAL ERA

Carlos Alexis Ortiz Garza<sup>1</sup>, Javier Reyes Trujeque<sup>1</sup>,  
William Alejandro Talavera Pech<sup>1</sup>, Edgar Casanova González<sup>2</sup>

1. Centre for Corrosion Research of Autonomous University of Campeche

2. National Science Laboratory for Research and Conservation of Cultural Heritage of Physics Institute of the National Autonomous University of Mexico

MPMS-14

09<sup>45</sup>-10<sup>00</sup>

#### RU-SUPPORTED ANODE FOR IMPROVING CATALYTICAL PROPERTIES IN MOLTEN CARBONATE CO-ELECTROLYSIS FOR EFFICIENT E-FUELS SYNTHESIS

Aliaksandr Martsinchyk, Krystsina Razumkova, Katsiaryna Martsinchyk, Arkadiusz Szczęśniak

Warsaw University of Technology

MPMS-15

10<sup>00</sup>-10<sup>15</sup>

#### ELECTROACTIVE POLYMER COMPOSITES WITH SEGREGATED STRUCTURE

Oleksii Maruzhenko<sup>1</sup>, Yevgen Mamunya<sup>1,2</sup>, Yurii Klymenko<sup>3</sup>,  
Maksym Iurzhenko<sup>1</sup>, Andrii Pylypenko<sup>2</sup>

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

2. Institute of Macromolecular Chemistry of NAS of Ukraine

3. Space Research Institute under NAS of Ukraine and SSA of Ukraine

MPMS-16

10<sup>15</sup>-10<sup>30</sup>

#### EFFECTS IN $Gd_2O_3$ AND GLASS SUBSTRATES ON THE RESISTANCE OF FE NANOSCALE FILMS TO DIRECT CURRENT (DC) VOLTAGE

Kostyantyn Korotkov, Anatoliy Kasumov, Aleksander Dmitriev

Frantsevich Institute for Problems of Materials Sciences of NAS of Ukraine

- MPMS-17 **INVESTIGATION OF THE CO-FREE SPINEL USED IN A ROLE OF PROTECTIVE LAYERS IN SOC APPLICATION**  
 10<sup>30</sup>-10<sup>45</sup> **Monika Łazor<sup>1,2,3</sup>, Leszek Ajdys<sup>1,2,3</sup>, Yevgeniy Naumovich<sup>1,2</sup>, Blanka Seredyńska<sup>3</sup>, Paulina Wieceńska<sup>3</sup>, Agnieszka Żurawska<sup>1,2</sup>**  
 1. Center for Hydrogen Technologies CTH2, Institute of Power Engineering  
 2. Department of High Temperature Electrochemical Processes, Institute of Power Engineering  
 3. Chemical Faculty, Warsaw University of Technology
- MPMS-18 **STUDY OF THE TITANIUM-BASED COATINGS STRUCTURE OBTAINED BY THE COLD SPRAY DEPOSITION METHOD**  
 10<sup>45</sup>-11<sup>00</sup> **Dmytro Pakula, Oleksandr Stasiuk, Denys Oryshych, Vitaliy Bevz, Andriy Tarasiuk**  
 G. V. Kurdyumov Institute for Metal Physics of NAS of Ukraine
- MPMS-19 **THE USE OF RARE EARTH FLUORIDES AS FLUX COMPONENTS IN TIG WELDING OF TITANIUM**  
 11<sup>00</sup>-11<sup>15</sup> **Serhiy Schwab**  
 E.O. Paton Electric Welding Institute of NAS of Ukraine

11:15

11:30

COFFEE-BREAK

11:30

13:00

MODERN PROBLEMS OF MATERIALS SCIENCE

Chair: D.Sci. Halyna Krechkovska

- MPMS-20 **TRIBOLOGICAL PROPERTIES OF TIN AND CRN CATHODIC ARC COATINGS ON TI-6AL-4V ALLOY**  
 11<sup>30</sup>-11<sup>45</sup> **Illia Klimenko<sup>1</sup>, Vitalii Belous<sup>1</sup>, Valerii Ovcharenko<sup>1</sup>, Halyna Tolmachova<sup>1</sup>, Oleksandr Kuprin, Victoria Podhurska<sup>2</sup>, Mykhaolo Ishchenko<sup>3</sup>, Ivan Babayev<sup>3</sup>**  
 1. National Science Center Kharkiv Institute of Physics and Technology  
 2. Karpenko Physico-Mechanical Institute of NAS of Ukraine  
 3. JSC "Ukrainian Energy Machines"
- MPMS-21 **IMPROVING THE PERFORMANCE CHARACTERISTICS OF THE RESISTANCE SPOT WELDING ELECTRODE BY IMPULSE LASER ALLOYING**  
 11<sup>45</sup>-12<sup>00</sup> **Yana Pavliuk<sup>1,2</sup>, Oleksandr Filatov<sup>1</sup>, Patrick Van Rymenant<sup>2</sup>, Alexander Pogorelov<sup>1</sup>, Jurgen Adriaensen<sup>3</sup>, Dmytro Pavliuk<sup>1,2</sup>**  
 1. G. V. Kurdyumov Institute for Metal Physics of NAS of Ukraine  
 2. Campus De Nayer, KU Leuven, Sint-Katelijne Waver of Belgium  
 3. Department of Laser Applications, Absolom Engineering, Turnhout of Belgium

- MPMS-22 **GROWTH OF  $CD_{0.9}ZN_{0.1}TE_{1-\gamma}SE_{\gamma}$  CRYSTALS FOR RADIATION DETECTION APPLICATIONS**  
 12<sup>00</sup>-12<sup>15</sup> **Kapustnik Alexey, Sofronov Dmitry, Terzin Igor, Naydenov Sergel, Pritula Igor, Kovalenko Nazar**  
 Institute for Single Crystals of NAS of Ukraine
- MPMS-23 **INFLUENCE OF  $MnO_3$  AND  $HfO_2$  PARTICLE SIZE ON THE PHASE COMPOSITION AND DENSITY OF DYSPROSIUM HAFNATE PELLETS**  
 12<sup>15</sup>-12<sup>30</sup> **Igor Chernov<sup>1</sup>, Victor Romankov<sup>1</sup>, Serhii Malykhin<sup>2</sup>, Igor Kolodiy<sup>3</sup>, Olexandr Kalchenko<sup>3</sup>**  
 1. "Nuclear Fuel Cycle" Science and Technology Establishment of National Science Center "Kharkiv Institute of Physics and Technology",  
 2. National Technical University "Kharkiv Polytechnic Institute",  
 3. Institute of Solid State Physics, Materials Science and Technologies of National Science Center "Kharkiv Institute of Physics and Technology"
- MPMS-24 **APPLICATION OF DEEP EUTECTIC SOLVENTS TO PREPARE ELECTROCATALYSTS FOR GREEN HYDROGEN PRODUCTION**  
 12<sup>30</sup>-12<sup>45</sup> **Dmytro Makhota, Olexandr Sukhatskyi, Lina Bobrova, Tetyana Butyrina, Vyacheslav Protsenko**  
 Ukrainian State University of Chemical Technology
- MPMS-25 **KINETICS OF THE DENSIFICATION OF POLYCRYSTALS SINTERED BY THE HPHT METHOD FROM DIAMOND POWDER SYNTHESIZED IN THE SYSTEM Mg-Zn-B-C COATED BY TITANIUM**  
 12<sup>45</sup>-13<sup>00</sup> **Oleksandr Cherniyenko, Oleksandr Bochechka, Vladyslav Vienikov, Anna Liamtseva**  
 V. Bakul Institute for Superhard Materials of NAS of Ukraine

13<sup>00</sup>-14<sup>00</sup>

LUNCH

14<sup>00</sup>-14<sup>30</sup>

PLENARY SESSION

Chair: D.Sci. Iryna Ivasenko

14<sup>00</sup>-14<sup>30</sup>

**PHYSICAL THEORY OF KINETIC INDENTATION, METHODS FOR MEASURING THE UNIVERSAL PARAMETERS OF THE PHYSICAL HARDNESS OF STRUCTURAL MATERIALS, PROPERTIES AND RELATIONSHIP WITH EMPIRICAL HARDNESS. APPLICATION PROSPECTS**

**Mykola Shtyryov**

Private Research and production Company "LYU"

14<sup>30</sup>-16<sup>15</sup>

## INFORMATION AND DIAGNOSTIC SYSTEMS

Chair: D.Sci. Iryna Ivasenko

IDS-1 **APPLICATION OF THE MAGNETO-OPTICAL EFFECT IN NON-DESTRUCTIVE TESTING**

14<sup>30</sup>-14<sup>45</sup> **Ihor Stasyshyn, Olha Suriadova**

Karpenko Physico-Mechanical Institute of NAS of Ukraine

IDS-2 **EXPERIMENTAL METHOD OF INVESTIGATING THE EFFECT OF LOW-VELOCITY IMPACT ON DAMPING CAPACITY OF MULTILAYER WOVEN CFRP**

14<sup>45</sup>-15<sup>00</sup> **Oleh Derkach, Valerii Kobzar**

G.S. Pisarenko Institute for Problems of Strength of NAS of Ukraine

IDS-3 **REMOTE INSPECTION OF KYIV TV BASED ON THE APPLICATION OF UNMANNED AIRCRAFT (UAV) AND THE PHOTOGRAMMETRY METHOD**

15<sup>00</sup>-15<sup>15</sup> **Dmytro Stelmakh, Oleksii Shutkevych, Inna Shkurat**

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

IDS-4 **INFORMATION SYSTEM FOR RESEARCH OF SOLAR-TERRESTRIAL COUPLING**

15<sup>15</sup>-15<sup>30</sup> **Danylo Ivantyshyn**

Lviv Polytechnic National University

IDS-5 **APPLICATION OF ELECTRO-PLASTICITY EFFECT AND SHEAROGRAPHY METHOD FOR NON-DESTRUCTIVE DETERMINATION OF RESIDUAL STRESSES**

15<sup>30</sup>-15<sup>45</sup> **Oleksii Shutkevych, Dmytro Stelmakh, Inna Shkurat**

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

IDS-6 **LAKE WATER VOLUME CALCULATION USING BATHYMETRIC SURVEY, RS AND GIS**

15<sup>45</sup>-16<sup>00</sup> **Dariya Ivchenko, Olga Alokhdina, Mykola Korus**

Karpenko Physico-Mechanical Institute of NAS of Ukraine

16<sup>00</sup>-16<sup>15</sup>

COFFEE-BREAK

16<sup>15</sup>-17<sup>45</sup>

## INFORMATION AND DIAGNOSTIC SYSTEMS

Chair: D.Sci. Iryna Ivasenko

IDS-7 **THE APPLICATION OF A BICONICAL SCATTERER FOR MODELING OF THE PLANE SURFACE DEFECT IN THE PRESENCE OF THE CONICAL PROBE**

16<sup>15</sup>-16<sup>30</sup> **Oleksiy Sharabura**

Karpenko Physico-Mechanical Institute of NAS of Ukraine

IDS-8 **ACOUSTIC PLANE WAVE SCATTERING FROM A TRUNCATED SEMI-INFINITE SOFT CONE AT AXIAL INCIDENCE**

16<sup>30</sup>-16<sup>45</sup> **Victor Lysechko, Oksana Trishchuk**

Karpenko Physico-Mechanical Institute of NAS of Ukraine

- IDS-9      **VISUAL CORROSION ASSESSMENT OF STRUCTURAL STEELS USING NEURAL NETWORKS**  
16<sup>45</sup>-17<sup>00</sup>    **Oleh Venhryniuk**  
Karpenko Physico-Mechanical Institute of NAS of Ukraine
- IDS-10      **INVESTIGATION OF VIBRATIONS IN DRY FRICTION PAIR USING PNRP METHODS**  
17<sup>00</sup>-17<sup>15</sup>    **Roman Sliepko<sup>1</sup>, Roman Yuzefovych<sup>1,2</sup> Oleh Lychak<sup>1</sup>**  
1. Karpenko Physico-mechanical Institute of NAS of Ukraine  
2. Lviv Polytechnic National University
- IDS-11      **ANALYSIS OF THE MAGNETIC FIELD ANOMALIES OF A PIPE WITH DEFECT**  
17<sup>15</sup>-17<sup>30</sup>    **Vasyl Dzhala, Maryan Melnyk**  
Karpenko Physico-mechanical Institute of NAS of Ukraine
- IDS-12      **DIAGNOSTIC ALGORITHM QUALITY OF THE STATE OF UNDERGROUND METAL STRUCTURES THE USING NEURAL NETWORKS**  
17<sup>30</sup>-17<sup>45</sup>    **Vitalii Lozovan**  
Karpenko Physico-mechanical Institute of NAS of Ukraine

## FRIDAY, SEPTEMBER 29, 2023

09 <sup>00</sup> -10 <sup>00</sup>	PARTICIPANT REGISTRATION
09 <sup>30</sup> -11 <sup>30</sup>	MODERN PROBLEMS OF MATERIALS SCIENCE Chair: Dr. Oleh Tkachuk
MPMS-26  09 <sup>30</sup> -09 <sup>45</sup>	<p><b>A NOVEL IR-TRANSPARENT Ho<sup>3+</sup>:Y<sub>2</sub>O<sub>3</sub>-MgO NANO-COMPOSITE CERAMICS FOR POTENTIAL LASER APPLICCATION</b></p> <p><b><u>Anton Balabanov</u>, Nadiia Safronova, Olexandra Kryzhanovska, Mariia Dobrotvorska, Ihor Vorona, Olexander Tolmachev, Roman Yavetskiy</b></p> <p>Institute for Single Crystals of NAS of Ukraine</p>
MPMS-27  09 <sup>45</sup> -10 <sup>00</sup>	<p><b>DEVELOPMENT OF PROTECTIVE COATING FOR MOLTEN CARBONATE FUEL CELL CURRENT COLLECTOR</b></p> <p><b><u>Viktoriya Podhurska</u><sup>1</sup>, Pavel Shuhayeu<sup>1</sup>, Oleksander Kuprin<sup>2</sup>, Jaroslav Milewski<sup>3</sup></b></p> <p>1. Karpenko Physico-Mechanical Institute of NAS of Ukraine 2. National Science Center "Kharkiv Institute of Physics and Technology" 3. Warsaw University of Technology</p>
MPMS-28  10 <sup>00</sup> -10 <sup>15</sup>	<p><b>DFT STUDY OF POINT DEFECTS IN YTTRIUM ALUMINUM GARNET DOPED WITH CARBON</b></p> <p><b><u>Kostiantyn Hermash</u><sup>1</sup>, Dmytro Fil<sup>1,2</sup></b></p> <p>1. Institute for Single Crystals of NAS of Ukraine 2. V.N. Karazin Kharkiv National University</p>
MPMS-29  10 <sup>15</sup> -10 <sup>30</sup>	<p><b>THE USE OF COMPUTER MODELING TO OPTIMIZE THE TECHNOLOGICAL MODES FOR THE MANUFACTURE OF THERMOELECTRIC MATERIALS BY THE METHOD OF VERTICAL ZONE MELTING</b></p> <p><b>Denis Rybchakov</b></p> <p>Institute of Thermoelectricity of NAS and MES of Ukraine</p>
MPMS-30  10 <sup>30</sup> -10 <sup>45</sup>	<p><b>FRACTURE PECULIARITIES OF NITINOL UNDER LOW-CYCLE FATIGUE</b></p> <p><b><u>Volodymyr Budz</u><sup>1</sup>, Halyna Krechkovska<sup>2</sup>, Volodymyr Iasnii<sup>1</sup></b></p> <p>1. Ternopil Ivan Puluj National Technical University 2. Karpenko Physico-Mechanical Institute of NAS of Ukraine</p>

MPMS-31 **SYNTHESIS OF A COMPLEX OF FERULIC ACID INCORPORATION INTO THE CAVITY OF MODIFIED B-CYCLODEXTRIN**  
10<sup>45</sup>-11<sup>00</sup>

**Yuliana Malykhina, OlenaChyhyrynets**

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

MPMS-32 **EFFECT OF Mg<sup>2+</sup>+Si<sup>4+</sup> COMPLEX ADDITIVE ON CONSOLIDATION FEATURES, MICROSTRUCTURE AND OPTICAL PROPERTIES OF Yag, Yag:SM<sup>3+</sup> CERAMICS**  
11<sup>00</sup>-11<sup>15</sup>

**Arsenii Tymoshenko, Ihor Vorona, Roman Yavetskiy, Sergey Parkhomenko, Andrey Doroshenko, Olexandra Kryzhanovska, Nadiia Safronova, Olexander Tolmachev**

Institute for Single Crystals of NAS of Ukraine

MPMS-33 **HYFLOW – A NOVEL SYSTEM FOR E-FUEL SYNTHESIS**  
11<sup>15</sup>-11<sup>30</sup>  
**Aliaksandr Martsinchyk<sup>2</sup>, Monika Łazor<sup>1,3</sup>, Katsiaryna Martsinchyk<sup>2,3</sup>, Pavel Shuhayeu<sup>2</sup>, Arkadiusz Baran<sup>2,3</sup>**

1. Politechnika Warszawska

2. Politechnika Warszawska, Wydział Mechaniczny Energetyki i Lotnictwa

3. Centrum Technologii Wodorowych, Instytut Energetyki – Instytut Badawczy

11<sup>30</sup>-11<sup>45</sup>

**COFFEE-BREAK**

11<sup>45</sup>-13<sup>30</sup>

**MODERN PROBLEMS OF MATERIALS SCIENCE**

Chair: Dr. Oleh Tkachuk

MPMS-34 **ESTABLISHING THE CAUSES OF PREMATURE FAILURE OF COMPOSITE REINFORCEMENT WITH UNIDIRECTIONAL DISCRETE FIBERS**  
11<sup>45</sup>-12<sup>00</sup>

**Taras Kovbasiuk, Tetiana Tepla, Maxim Palchevskyi**

Lviv Polytechnic National University

MPMS-35 **INFLUENCE OF OXYGEN-STABILIZED H-PHASE ON THE HYDROLYSIS PROPERTIES OF MgH<sub>2</sub>**  
12<sup>00</sup>-12<sup>15</sup>

**Olexander Kononiuk**

Karpenko Physico-Mechanical Institute of NAS of Ukraine

MPMS-36 **INFLUENCE OF AIR PRESSURE ON THE PROPERTIES OF ARC COATINGS**  
12<sup>15</sup>-12<sup>30</sup>

**Volodymyr Hvozdetzkyi<sup>1</sup>, Khrystyna Zadorozhna<sup>1</sup>, Taras Artym<sup>1</sup>, Bohdan Trembach<sup>2</sup>, Illia Trembach<sup>2</sup>**

1. Karpenko Physico-Mechanical Institute of the NAS of Ukraine  
2. Novokramatorsky Mashinostroitelny Zavod

MPMS-37 **SYNTHESIS, STRUCTURE AND ELECTROCHEMICAL PROPERTIES OF THE NDY<sub>2</sub>Ni<sub>9-x</sub>MN<sub>x</sub> ALLOYS**

12<sup>30</sup>-12<sup>45</sup>

**Volodymyr Oprysk, Yuriy Verbovytskyy**

Karpenko Physico-Mechanical Institute NAS of Ukraine

MPMS-38 **DEPOSITION OF CALCIUM PHOSPHATE COATING ON TITANIUM DEPENDS ON ELECTROLYTE COMPOSITION**  
12<sup>45</sup>-13<sup>00</sup> **Roman Proskurniak, Oleh Tkachuk**

Karpenko Physico-Mechanical Institute of NAS of Ukraine

MPMS-39 **FEATURES OF CHRONOAMPEROMETRIC STUDIES OF WATER SORBENT MATERIALS**  
13<sup>00</sup>-13<sup>15</sup> **Khrystyna Vlad**

Karpenko Physico-Mechanical Institute of NAS of Ukraine

MPMS-40 **INFLUENCE OF STRUCTURAL FACTOR ON MECHANICAL CHARACTERISTICS OF AUSTENITIC STEELS IN LIQUID LEAD AT ELEVATED TEMPERATURES**  
13<sup>15</sup>-13<sup>30</sup>

**Ivan Kukhar**

Karpenko Physico-Mechanical Institute of NAS of Ukraine

13<sup>30</sup>-14<sup>30</sup>

**LUNCH**

14<sup>30</sup>-15<sup>00</sup>

**PLENARY SESSION**

Chair: Dr. Olga Chepil

15<sup>15</sup>-15<sup>45</sup>

**MORE STEPS TOWARDS A NEW CONCEPT OF CRACK PATH**

**Prof. Jesús Toribio**

University of Salamanca (Spain)

15<sup>00</sup>-16<sup>30</sup>

**FRACTURE MECHANICS AND STRENGTH OF MATERIALS**

Chair: Dr. Olga Chepil

FMSM-1

**THE INVESTIGATION OF STRESS STATE OF AN AXISYMMETRIC POROELASTIC CYLINDER**

15<sup>00</sup>-15<sup>15</sup>

**Zinaida Zhuravlova**

Odesa I.I. Mechnikov National University

FMSM-2

**THE PECULIARITIES OF CORROSION-MECHANICAL DESTRUCTION OF WELDED JOINT FROM CONTROLLABLE ROLLED STEEL UNDER CATHODIC POLARIZATION**

15<sup>15</sup>-15<sup>30</sup>

**Yurii Lisovskiy, Lyudmyla Nyrkova, Larysa Goncharenko, Leonid Feinberg**

FMSM-3

**E.O. Paton Electric Welding Institute of NAS of Ukraine**  
**SUBSTANTIATION OF THE POSSIBILITY OF REPAIRING SUCKER**

15<sup>30</sup>-15<sup>45</sup>

**Andriy Stefanyshyn<sup>1</sup>, Bohdan Bakun<sup>2</sup>, Ihor Kopei<sup>2</sup>, Halyna Krechkovska<sup>3</sup>, Oksana Stefanyshyn<sup>1</sup>**

1. PJSC UkrNafta

2. Ivano-Frankivsk National Technical University of Oil and Gas

3. Karpenko Physico-Mechanical Institute of the NAS of Ukraine

FMSM-4 **CRACK HEALING IN A TRANSTROPIC ELASTIC BODY UNDER TORSION**

15<sup>45</sup>-16<sup>00</sup> **Maksym Filipov**

Karpenko Physico-Mechanical Institute of NAS of Ukraine

FMSM-5 **ASSESSMENT OF THE RESIDUAL LIFETIME OF A DEFECTIVE PIPELINE AT DIFFERENT HYDROGEN CONCENTRATIONS IN THE METAL**

16<sup>00</sup>-16<sup>15</sup>

**Yaroslav Sapuzhak, Ivanna Soviak**

Karpenko Physico-Mechanical Institute of NAS of Ukraine

FMSM-6 **STRESS STATE OF AN ORTHOTROPIC PLATE AT THE CURVILINEAR HOLES**

16<sup>15</sup>-16<sup>30</sup>

**Andrii Chornenkyi**

Karpenko Physico-Mechanical Institute of NAS of Ukraine

**16<sup>30</sup>-16<sup>45</sup>**

**COFFEE-BREAK**

**16<sup>45</sup>-18<sup>00</sup>**

**FRACTURE MECHANICS AND STRENGTH OF MATERIALS**

Chair: Dr. Olga Chepil

FMSM-7 **SIMULATION OF CREEP CRACK GROWTH UNDER THE ACTION OF NEUTRON IRRADIATION**

16<sup>45</sup>-17<sup>00</sup>

**Iryna Dolinska<sup>1</sup>, Orest Svirchevskiy<sup>2</sup>**

1. Karpenko Physico-Mechanical Institute of NAS of Ukraine

2. Ivan Franko Lviv National University

FMSM-8 **PREDICTION OF THE RESIDUAL DURABILITY OF STRUCTURAL ELEMENTS UNDER THE DUAL INFLUENCE OF HYDROGEN**

17<sup>00</sup>-17<sup>15</sup>

**Nazar Hembara**

Karpenko Physico-Mechanical Institute of NAS of Ukraine

FMSM-9 **THE RESIDUAL RESOURCE ASSESSMENT OF A OIL PIPELINE WITH A SURFACE DEFECT UNDER THE LOAD AND ENVIRONMENTAL FACTORS**

17<sup>15</sup>-17<sup>30</sup>

**Iryna Dolinska, Mykola Liubchak**

Karpenko Physico-Mechanical Institute of NAS of Ukraine

FMSM-10 **HYDROGEN EMBRITTLEMENT BEHAVIOR OF PLASTICALLY PRE-STRAINED AND HYDROGEN-CHARGED LOW ALLOY STEEL**

17<sup>30</sup>-17<sup>45</sup>

**Mykhailo Hrynenko**

Karpenko Physico-mechanical Institute of NAS of Ukraine

FMSM-11 **EVALUATION OF THE PERIOD INITIATION OF FATIGUE MICROCRACK ON THE SURFACE OF THE WHEELSET AXLE OF A RAILWAY CAR**

17<sup>45</sup>-18<sup>00</sup>

**Yurii Kanyuk**

Karpenko Physico-mechanical Institute of NAS of Ukraine

**18:00**

**CLOSING CEREMONY**