



## 7<sup>th</sup>INTERNATIONAL CONFERENCE PROGRAMME

### Emerging Technologies in Materials Engineering – EmergeMAT

Day 1 (30.10.2024)	
8.30-09.00	<b>REGISTRATION AND COFFEE</b>
09:00-09:10	<b>WELCOME AND OPENING OF THE CONFERENCE SPONSORS PRESENTATIONS</b>
09:10-09:30	<b>ADVANCED MATERIALS, EMERGENT TECHNOLOGIES AND INDUSTRIAL LEADERSHIP</b> General Director of IMNR- Roxana -Mioara Piticescu (Romania)
09:30-09:45	<b>Representatives of Romania Ministeries</b> <b>GREEN HYDROGEN</b> Consilier Mihnea Păunescu (Ministerul Energiei )
09:45-10:00	<b>EMERGENT TECHNOLOGIES WITH APPLICATIONS IN MEDICINE</b> Cătălin Zaharia (Romania)
10:00-10:20	<b>POSSIBILITIES OF RECYCLING AND DIRECT REUSE WASTE PERMANENT MAGNETS BY MECHANOCHEMICAL METHOD</b> Zara Cherkezova-Zheleva (Bulgaria)
10:20-10:50	<b>HIGHLY EFFECTIVE LAYERED DOUBLE HYDROXIDE-DERIVED MULTICATIONIC MIXED METAL OXIDE CATALYSTS FOR METHANE EMISSIONS ABATEMENT</b> Ioan -Cezar MARCU (Romania)
10:50-11:10	<b>BUCHAREST-ILFOV REGIONAL DEVELOPMENT AGENCY'S ACTIONS TOWARDS PROMOTING CIRCULAR ECONOMY</b> ADRBI -Berghin OSMAN (Romania)
11:10-11:30	<b>MATERIAL DESIGN FOR THE SUSTAINABLE DEVELOPMENT OF BONE GRAFTING – Anton FICAI (Romania)</b>
11:30-11:50	<b>COFFE BREAK</b>
<b>SECTION 1: MATERIALS FOR ENERGY</b>	
<b>Chairs: Ph.D. Adrian Mihail MOTOC (IMNR), Prof Ph.D. Viorica MUSAT (UGAL)</b>	
11:50-12:05	<b>NON-VOLATILE MEMORY IN SILICON OIL DISPERSED FERROELECTRIC LIQUID CRYSTAL EMULSION SYSTEM FOR STORING APPLICATIONS</b> Ashok Chaudhary (India)
12:05-12:20	<b>GROWTH OF ZnO NANORODS FOR PHOTOVOLTAIC APPLICATIONS</b> Oumayma Haddad (France)
12:20-12:35	<b>NOVEL QUINOLINE-BASED INHIBITORS FOR CORROSION PROTECTION OF MILD STEEL IN ACIDIC CHLORIDE MEDIA: A COMPREHENSIVE ELECTROCHEMICAL AND SURFACE ANALYSIS</b> Khaoula Mzioud (Maroc)

12:35-12:50	<b>A NOVEL PHOSPHATE-BASED COMPOUND FOR GREEN CORROSION INHIBITION: SYNTHESIS, CHARACTERIZATION, AND PERFORMANCE EVALUATION</b> <b>Nouhaila Ferraa (Maroc)</b>
12:50-13:05	<b>NOVEL QUINOLINE DERIVATIVES AS EFFECTIVE CORROSION INHIBITORS IN HCL ENVIRONMENTS: ELECTROCHEMICAL AND SURFACE ANALYSES</b> <b>Zakia Aribou (Maroc)</b>
13:05-14:00	<b>LUNCH</b>
14:00-14:15	<b>ANTICORROSIVE POWER OF MARRUBIUM VULGARE L FROM MOROCCO</b> <b>Sara Rached (Maroc)</b>
14:15-14:30	<b>ATHENA AND CHEMLAB EXPERIMENTAL INFRASTRUCTURE: ADVANCED CAPABILITIES FOR TESTING MATERIALS UNDER EXTREME CONDITIONS</b> <b>Marin Constantin (Romania)</b>
14:30-14:45	<b>SORPTION ENHANCED GASIFICATION FOR HYDROGEN PRODUCTION FROM DIFFERENT BIOMASS WASTE VIA PILOT SCALE ROTARY DRUM REACTOR</b> <b>Umberto Pasqual Laverdura (Italia)</b>
14:45-15:00	<b>SYNTHESIS AND CHARACTERIZATION OF BaCe<sub>1-x-y</sub>Zr<sub>x</sub>MyO<sub>3</sub> (M = Y, Gd) PROTON CONDUCTORS FOR SOLID OXIDE CELLS</b> <b>Lorenzo Freschi (Italy)</b>
15:00-15:15	<b>EFFECT OF CuO NANOPARTICLES ON THE SOPTION- PHOTOCATALYTIC PROPERTIES and MECHANICAL BEHAVIOUR OF ZEOLITE-MODIFIED PVDF MEMBRANES</b> <b>Viorica Musat (Romania)</b>
15:15-15:30	<b>COFFE BREAK</b>
<b>SECTION 2: CRITICAL RAW MATERIALS</b> <b>Chairs:PhD. Radu Robert PITICESCU(IMNR), PhD. Beatrice-Adriana ȘERBAN(IMNR)</b>	
15:30-15:45	<b>IMPACT OF MOISTURE ABSORPTION AND LAYERING SEQUENCES ON THE FLEXURAL PROPERTIES OF HYBRID KENAF/GLASS FIBER REINFORCED EPOXY/AEPO-OMMT COMPOSITES</b> <b>ROHANI MUSTAPHA (Malaysia Terengganu)</b>
15:45-16:00	<b>ENHANCING DIELECTRIC AND MECHANICAL PROPERTIES OF PVC CABLE, REINFORCED WITH SiO<sub>2</sub>/CaCO<sub>3</sub> NANO-FILLERS.</b> <b>Mamoona Alam, (Pakistan)</b>
16:00-16:15	<b>SYNTHESIS AND CHARACTERIZATION OF STRONTIUM-DOPED HYDROXYAPATITE DERIVED FROM NATURAL RESOURCES</b> <b>Siddhartha Dan (India) --</b>
16:15-16:30	<b>TRANSFORMING WASTE INTO WOUND CARE: CARBOXYMETHYL CELLULOSE FILMS FROM WATER HYACINTH</b> <b>Sandeep Kumar Shukla (India)</b>

16:30-16:45	<b>SILICA ROLE IN ENHANCED ABSORPTION TECHNOLOGIES AND ADVANCED WATER TREATMENT</b> <b>Juhi Singh (India) --</b>
16:45-17:00	<b>3D BIOPACKAGING DERIVED FROM AGRIFOOD AND FOOTWEAR BYPRODUCTS</b> <b>Carolina Martins (Portugal)</b>
17:00-17:15	<b>DEVELOPMENT OF BIOPLASTIC FOOTWEAR COATINGS USING FOOTWEAR AND AGRIFOOD BYPRODUCTS</b> <b>Toktam Pedramrad ( Portugal)</b>
17:15-17:30	<b>EFFICIENT PURIFICATION AND PRODUCTION OF RARE EARTH METALS FROM BASTNASITE ORE: BENEFICIATION, LEACHING, SOLVENT EXTRACTION, AND METALLOTHERMIC REDUCTION APPROACHES</b> <b>Tülay KOÇ DELİCE (Turkey)</b>
17:30-17:45	<b>RECOVERY OF PLATINUM GROUP METALS FROM SCRAP AUTOMOTIVE CATALYSTS BY HYDROMETALLURGICAL METHOD</b> <b>Yasemin Kaya (Turkey)</b>
17:45-18:00	<b>DRY REFORMING OF METHANE USING A RECYCLED PLATINUM SOLUTION SUPPORTED ON CeO<sub>2</sub></b> <b>Alessio Varotto (Italy)</b>
18:00-18:15	<b>THE ROLE OF ATMOSPHERIC PRESSURE PLASMA TREATMENT ON THE PROCESS OF ADDITIVE MANUFACTURING OF POLYMERS</b> <b>Andrei Vasile Năstuță (Romania)</b>
18:15-18:30	<b>GREEN HYDROGEN APPLICATION IN REDUCING CONSUMPTION OF FOSSIL FUELS AND DECARBONIZATION OF CEMENT PRODUCTION</b> <b>Liliana Lazăr (Romania)</b>
18:30-18:45	<b>PERFORMANCE OF A NEW ION EXCHANGE RESIN FOR BRINE ULTRAPURIFICATION USED IN ALKALINE ELECTROLYSIS</b> <b>Liliana Lazăr (Romania)</b>
18:45-19:00	<b>OPTIMIZATION OF Cu-SiC<sub>x</sub>N<sub>y</sub> MULTILAYER STRUCTURES FOR LOW EMISSIVITY APPLICATIONS</b> <b>Iulian PANĂ (Romania)</b>
<b>Parallel Sesion</b>	
17:00-19:00	<b>WORKSHOP: MICROWAVE ENHANCED RECOVERY OF REES AND PLASTIC FROM WEEE AND RE-USE IN ADDITIVE MANUFACTURING OF NOVEL MAGNETIC COMPONENTS</b> <b>Participants:</b> <b>FADDORY SRL Belgium (Olivier Jay)</b> <b>SIRRIS Belgia (Guido Heunen)</b> <b>IC-BAS Bulgaria (Zara Cherkezova-Zheleva)</b> <b>IMNR (Marian Burada, Sabina Fironda, Piticescu Radu)</b> <b>DAILY SOURCES AND RESOURCES SRL Bucuresti (Sorin Axinte)</b>
<b>Day 2 (31.10.2024)</b>	

08:30-09:00	<p><b>COFFEE AND REGISTRATION OF PARTICIPANTS*</b></p> <p><i>Note: Online access is available from 08:45. Participants are encouraged to log in as early as possible.</i></p>
<p><b>SECTION 3: NEW MATERIALS FOR ENVIRONMENTAL PROTECTION</b></p> <p><b>Chairs: PhD. Laura-Mădălina CURSARU (IMNR), PhD. Ana-Maria MOCIOIU (IMNR)</b></p>	
09:00-09:15	<p><b>TUNING THE PHOTOCATALYTIC PERFORMANCES BY DOPING CONTROL OF PR INTO ZNO NANOSTRUCTURES FOR REMOVAL OF ORGANIC POLLUTANTS</b></p> <p><b>Petronela Pascariu ((Romania)</b></p>
09:15:09:30	<p><b>UNLOCKING THE POTENTIAL: AN ECO-FRIENDLY METHOD FOR CREATING, ANALYZING, AND EVALUATING THE SAFETY OF AN INNOVATIVE POLYMER STRUCTURE FOR NOVEL DRUG DELIVERY SYSTEMS AND ITS APPLICATION</b></p> <p><b>Meghraj Suryawanshi (India)</b></p>
09:30-09:45	<p><b>ELECTROCHEMICAL STUDY ON MODIFIED FORM OF COUMARIN FOR ITS INCREASED ANTICOAGULATION POTENCY</b></p> <p><b>Dr. Rakesh Choure (India)</b></p>
09:45-10:00	<p><b>REVIEW ON POLYMERS: UTILIZATION FOR SUSTAINABLE FUTURE</b></p> <p><b>Sakshi Shukla (India)</b></p>
10:00-10:15	<p><b>A SCREEN-PRINTING APPROACH TO PRODUCE LOW-COST SENSORS FOR THE DETECTION OF VOLATILE AMINES</b></p> <p><b>Hélder Baptista (Portugal)</b></p>
10:15-10:30	<p><b>ASSISTED EGG WHITE BIOGENIC SYNTHESIS FOR ELABORATION OF ZNO NANOPARTICLES</b></p> <p><b>Elena Andreea Vijan (UNSTPB, Romania)</b></p>
10:30-10:45	<p><b>HYBRID NANOSTRUCTURES DESIGNED BY IN-SITU GOLD NANOPARTICLES SYNTHESIS USING CHITOSAN-g-POLY(N-ISOPROPYLACRYLAMIDE)</b></p> <p><b>Zaharia Marius-Mihai (Romania)</b></p>
10:45-11:00	<p><b>AEROPHILIC SURFACES FOR SUSTAINED CORROSION PROTECTION OF METALS UNDERWATER</b></p> <p><b>Alexander Tesler (Germany)</b></p>
11:00-11:15	<p><b>EFFICIENCY OF BIOLOGICAL VERSUS MESOPOROUS ADSORBENT FOR GADOLINIUM REMOVAL FROM WASTEWATER</b></p> <p><b>Inga Zinicovscaia (Russia)</b></p>
11:15-11:30	<p><b>CLIMATE CHANGE A NECESSITY ÎN THE PROCESS OF IMPROVEMENT AND CULTIVATION OF THE GRAPEVINE</b></p> <p><b>Alexandrov Eugeniu (Republic of Moldova)</b></p>
11:30-11:45	<p><b>ZnO NANOSTRUCTURE MORPHOLOGY INFLUENCE ON SAW SENSOR HYDROGEN DETECTION</b></p> <p><b>Aurelian Marcu (INFLPR, Romania)</b></p>
11:45-12:00	<p><b>COFFEE BREAK</b></p>
12:00-12:15	<p><b>LACCASE/ CHITOSAN-g-PNIPAM HYBRID NANOSTRUCTURES FOR POTENTIAL ENVIRONMENTAL APPLICATIONS</b></p>

	<b>Larisa Petrilă (Romania)</b>
15:15-12:30	<b>PLASMA SURFACE WEAR-RESISTANT TITANIUM AIRCRAFT ALLOYS</b> <b>Paul Olaru (Germany)</b>
12:30-12:45	<b>REMOVAL OF ANTI-INFLAMMATORY DRUGS AND METHYL ORANGE FROM WASTEWATERS BY COPPER-MODIFIED HEMP FIBRES: A MULTIFUNCTIONAL USE OF A NOVEL AND GREEN ADSORBENT</b> <b>Gianluca Viscusi (Italy)</b>
12:45-13:00	<b>POLYANILINE-BASED SENSOR AFFINITY STUDY TOWARDS AMMONIA</b> <b>Ana Maria Popa (Romania)</b>
13:00-14:00	<b>LUNCH</b>
14:00-14:15	<b>ARSENIC AND SELENIUM REMOVAL FROM POLLUTED WATER USING A NOVEL IRON-IMPREGNATED SUCROSE FOAM</b> <b>Diego Baragaño (Spain)</b>
14:15-14:30	<b>SYNTHESIS AND CHARACTERIZATION OF POLYPROPYLENE - CARBOXYMETHYL CELLULOSE COMPOSITES DEVELOPED FOR THE AUTOMOTIVE INDUSTRY</b> <b>Ioana Ion (Romania)</b>
14:30-14:45	<b>THE ROLE OF NANOMATERIALS AND DEEP EUTECTIC SOLVENTS IN ENVIRONMENTAL SAFETY</b> <b>Bárbara Socas Rodríguez (Spain)</b>
14:45-15:00	<b>ENHANCED PHOTOCATALYTIC EFFICIENCY OF TITANIA BASED CORE-SHELL NANOPARTICLES USING MAGNETIC FIELD</b> <b>Daniel Gherca (Romania)</b>
15:00-15:15	<b>TURNING WASTE INTO VALUE: DEVELOPING NEW ADSORBENT FROM CONSTRUCTION AND BANANA RESIDUES FOR DYES REMOVAL FROM AQUEOUS SOLUTIONS</b> <b>Iolanda-Veronica Ganea (Romania)</b>
15:15-15:30	<b>PHOTOCATALYTIC PROPERTIES OF ZINC OXIDE - BASED CERAMICS USED FOR WASTE WATER PURIFICATION</b> <b>Oana Catalina Mocioiu (Romania)</b>
15:30-15:45	<b>COFFE BREAK</b>
<b>SECTION 4: MATERIALS MODELING AND SIMULATION</b>	
<b>Chairs: PhD. Dumitru MITRĂ (IMNR), Phd. Valentin Dumitru DRĂGUȚ (IMNR)</b>	
15 :45-16 :00	<b>ADVANCING ALZHEIMER'S DISEASE DIAGNOSIS AND TREATMENT: THE ROLE OF 2D NANOMATERIALS AND EMERGING MAGNETO-MECHANICAL STRATEGIES</b> <b>Bhawana Paliwal (India)</b>
16:00-16:15	<b>THE HYDROGEN-LIKE ATOMS: QUANTUM STATES ANALYSIS AND GEOMETRICAL DESCRIPTION OF THEIR ORBITALS</b> <b>Diana R. Constantin (Romania)</b>
16:15-16:30	<b>DISTRIBUTION OF PHARMACOLOGICAL MATERIAL DURING PULSATORY LIPOSOME OPERATION</b> <b>Diana R. Constantin (Romania)</b>

16:30-16:45	<p><b>ASSESSMENT OF THE THIOL-DISULFIDE SYSTEM IN ERYTHROCYTES IN VIVO UNDER THE INFLUENCE OF COPPER COORDINATION COMPOUNDS WITH THIOSEMICARBAZONE</b></p> <p><b>Valeriana Pantea (Republic of Moldova)</b></p>
16:45-17:00	<p><b>OPTIMIZING 3D PRINTING PROCESSES THROUGH THE INTEGRATION OF ADVANCED MATERIALS, PROGRAMMING, AND ARTIFICIAL INTELLIGENCE: FROM CAD TO REALITY</b></p> <p><b>Ciobota Năstase Dan (Romania)</b></p>
17:15-17:15	<p><b>MULTISCALE MODELLING OF MULTILAYERED ARRAYED FUNCTIONAL COATINGS FOR HIGH PERFORMANCE OPTOELECTRONICS</b></p> <p><b>Adrian Moraru (Romania)</b></p>
17:15-17:30	<p><b>TECHNICAL AND ECONOMIC ANALYSIS OF A LARGE AND SMALL-SCALE COMBINED CYCLE WITH INTEGRATED CARBON CAPTURE: THE FRAMEWORK OF FUTURE INCREASE IN SHARE OF RENEWABLE</b></p> <p><b>Francesca Rita Famà (Italy)</b></p>
17:30-17:45	<p><b>DFT INVESTIGATIONS ON HYDROGEN SORPTION IN BULK <math>\alpha</math>-MoO<sub>3</sub></b></p> <p><b>Viorel Chihaiia (Romania)</b></p>
<b>Parallel Sesions</b>	
17:45-19:00	<p><b>Workshop : RETECH – RECOVERY OF RARE EARTH ELEMENTS FROM COMPLEX CONCENTRATES FROM TURKEY AND THEIR POTENTIAL USE IN HIGH-TECH INDUSTRIAL APPLICATIONS</b></p> <p><b>1.Efficient purification and production of rare earth metals from bastnasite ore: beneficiation, leaching, solvent extraction, and metallothermic reduction approaches - Tülay KOÇ DELİCE (Turkey)</b></p> <p><b>2.Recovery of platinum group metals from scrap automotive catalysts by hydrometallurgical method Yasemin KAYA (TENMAK, NATEN, Turkey)</b></p> <p><b>3 Optimizing Solid Oxide Fuel Cells: The Impact of RF Sputtering and Rare Earth Elements from Natural Sources on Thin Film Fabrication</b></p> <p><b>-Andreea Nicoleta GHITA</b></p> <p><b>4. LCA of Neodymium permanent magnets recycling processes -Sabina FIRONDA</b></p>
17:45-19:00	<p><b>Workshop M2DESCO- COMPUTATIONAL MULTI-MODELS ENABLED DESIGN OF SAFE &amp; SUSTAINABLE MULTI-COMPONENT HIGH-ENTROPY COATINGS</b></p> <p><b>1 Complex Concentrated Alloys as a Next-Generation Solution for Future Technologies” – Ioana ANASIEI</b></p> <p><b>2. Phase prediction and characterization of selected novel high entropy alloys-Laurentiu Florin MOSINOIU;</b></p> <p><b>3. REO doped ZrO<sub>2</sub> as high entropy oxides -Gabriela Florentina IONITA</b></p> <p><b>4. Optimizing 3d printing processes through the integration of advanced materials, programming, and artificial intelligence : from cad to reality- Dan CIOBOTA</b></p> <p><b>5. Numerical Simulation of Joule Heating in CFRP Composite- Liviu BADEA</b></p> <p><b>6. Characterization of thin films obtained by sputtering method from high entropy alloy targets – Arcadii SOBETKII</b></p>

17:45-19:00	<p><b>Workshop RELIEF - RECYCLING OF LITHIUM FROM SECONDARY RAW MATERIALS AND FURTHER</b></p> <ol style="list-style-type: none"><li>1.Short presentation of “Recycling of Lithium from secondary Raw Materials and further – RELiEF” project (ctr. no. 48PHE/2024) -Adrian Mihail MOTOC</li><li>2. Driving sustainability in Li_Ion batteries through life-cycle assessment -Adelina Ionela MATEI</li><li>3. Enhancing Electrode Fabrication for Advanced Batteries by Integrating Advanced Materials and Bridging CAD, Programming and Machine Learning"- Dan Nastase CIOBOTA</li><li>4. Additive Manufacturing: Revolutionizing the Future of Production through 3D Printing for Enhanced Efficiency and sustainable development – Marian COSTEA</li><li>5. Chemical precipitation of Lithium from secondary sources- Mihai OLARU</li><li>6. Characterization of cathode/anode materials by chemical and spectral analysis- Ana Maria MOCIOIU</li><li>7. Mitigating the environmental impact of recycling Li-ion batteries- Bianca Magdalena BADEA</li></ol>
17:45-19:00	<b>YOUNG SCIENTISTS AWARD COMPETITION: BEST POSTERS AWARDS</b>

- Note: EET (Eastern European Time)
- Note: Online access is available from 08.45. Participants are encouraged to log in as early as possible.