# APMAS 2024

## 14th International Advances in Applied Physics & Materials Science Congress & Exhibition

## ENEFM 2024

## 10th International Congress on Energy Efficiency and Energy Related Materials

## MEDOPTICS 2024

## 3rd International Conference on Medical Optics

**October 08-14, 2024**

**Liberty Hotels Lykia, Oludeniz**
**MUGLA / TURKEY**

| ***TENTATIVE* P R O G R A M**<br>***SUNDAY, OCTOBER 06, 2024*** | |
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| *14:00-16:30* | ***REGISTRATION FOR EARLY ARRIVALS***<br>***(14:00 Check-in)*** |

| ***TENTATIVE* P R O G R A M**<br>***MONDAY, OCTOBER 07, 2024*** | |
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| *9:00-16:30* | ***REGISTRATION***<br>***(14:00 Check-in)*** |
| *Everyday Tours* | ***SOCIAL PROGRAM***<br>• ***Saklıkent Jeep Safari***<br>• ***Paragliding in Oludeniz*** |

| ***TENTATIVE* P R O G R A M**<br>***TUESDAY, OCTOBER 08, 2024*** |
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| **APMAS & ENEFM & MEDOPTICS** |
| **HALL 1** |

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| **PLENARY SESSION** *10:30-11:15* | Chairperson**: A.Yavuz Oral**<br><br>**Alper Sahiner**<br>Seton Hall University, USA<br><br>**"IDxx-"** |
| *11:15-11:45* | ***COFFEE BREAK*** |
| **PLENARY SESSION** *11:45-12:30* | Chairperson**: A.Yavuz Oral**<br><br>**Lech Tomasz Baczewski**<br>Institute of Physics PAS, Poland<br><br>**"ID2597-** Interaction between chirality and magnetism in hybrid nanostructures**"** |

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| *12:30-14:00* | ***LUNCH*** | |
| **PARALLEL SESSIONS** *14:00-15:00* | **APMAS & ENEFM & MEDOPTICS**<br><br>**HALL 1**<br><br>Chairperson: **Arcady Zhukov**<br><br>14:00-14:30<br>**Arcady Zhukov**<br>Univ. Basque Country, UPV/EHU San Sebastián, Spain<br>(invited speaker)<br>**ID2590**- Development of Amorphous Microwires with Graded Magnetic Anisotropy<br><br>14:30-15:00<br>**Andrei Mitru**<br>Romanian Research and Development Institute for Gas Turbines COMOTI, Romania<br>(invited speaker)<br>**ID588-** Thermal and energy efficiency solutions for natural gas compression using industrial automation | **APMAS & ENEFM & MEDOPTICS**<br><br>**HALL 2**<br><br>Chairperson: Pietro Galinetto<br><br>14:00-14:30<br>**Pietro Galinetto**<br>University of Pavia, Italy<br>(invited speaker)<br>**ID2695-** SERS performances of PDA-coated silver and gold nano-objects for emerging pollutants monitoring<br><br>14:30-14:50<br>**Yonggyu Lee**<br>Korea Construction Equipment Technology Institute, Korea, Republic Of<br>**ID2772-** A Study on the Development and Vaildation of an Integrated Steering and Driving Dynamics Model for an MR-Based K9 Howitzer Firing Simulator |
| *15:00-15:30* | ***COFFEE BREAK*** | |
| **PARALLEL SESSIONS** *15:30-17:00* | **APMAS & ENEFM & MEDOPTICS**<br><br>**HALL 1**<br><br>Chairperson: **Vijaya Srinivasu Vallabhapurapu**<br><br>15:30-16:00<br>**Vijaya Srinivasu Vallabhapurapu**<br>University of South Africa, South Africa<br>(invited speaker)<br>**ID2603-** Resistive Switching Memory (ReRAM) through bio-materials<br><br>16:00-16:30<br>**Sandra Lepak-Kuc**<br>Warsaw University of Technology, Poland<br>(invited speaker)<br>**ID2770-** Eco-Friendly Carbon-Based Conductive Composites: Shaping the Future of Biosensors and Beyond<br><br>16:30-17:00<br>**Gabriel P. Potirniche**<br>University of Idaho, USA<br>(invited speaker)<br>**ID2578-** Experimental and Computational Study of Fatigue Crack Growth in Austenitic Stainless-Steel Alloy 709 at Elevated Temperatures | |

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| | ***TENTATIVE* P R O G R A M**<br>***WEDNESDAY, OCTOBER 09, 2024*** |
| | **APMAS & ENEFM & MEDOPTICS** |
| | **HALL 1** |
| **PLENARY SESSION** *10:00-10:45* | Chairperson**: A.Yavuz Oral**<br><br>**Mohamed Naceur BELGACEM**<br><br>University Grenoble Alpes, France<br><br>"**ID2664-** Biomass conversion: The raw material of tomorrow" |
| *10:45-11:15* | ***COFFEE BREAK*** |
| **PARALLEL SESSIONS** *11:15-12:25* | **APMAS & ENEFM & MEDOPTICS**<br><br>**HALL 1**<br><br>Chairperson: **Balázs Illés**<br><br>11:15-11:45<br>**Balázs Illés**<br>Budapest University of Technology and Economics, Hungary<br>(invited speaker)<br>**ID2602-** Properties of Sn99Ag0.3Cu0.7-($ZrO_2$/CuO/$TiO_2$) composite solder joints<br><br>11:45-12:05<br>**Erdem Sahin**<br>Mugla University, Turkey<br>**ID2691-** Cementitious coatings on magnesium alloys for in vivo passivation<br><br>12:05-12:25<br>**Chengcheng Wang**<br>China Nuclear Power Engineering Co. Ltd, China<br>**ID2651-** New Requirements of Defense in Depth and Extension of Its Application |
| **12:35-13:15** | ***LUNCH*** |
| **13:15-18:00** | ***SOCIAL PROGRAM***<br><br>*13:15-18:00* ***GHOST TOWN & BLUE LAGOON***<br><br>***(Gathering at Congress registration desk)*** |

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| | ***TENTATIVE* P R O G R A M**<br>***THURSDAY, OCTOBER 10, 2024*** |
| | **APMAS & ENEFM & MEDOPTICS** |
| | **HALL 1** |
| **PLENARY SESSION** *10:00-10:45* | Chairperson**: A.Yavuz Oral**<br><br>**Ahmed Abdala**<br><br>Hamad Bin Khalifa University, Doha, Qatar |

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| | **"ID553-** High-performance Membranes for Energy Efficient Air cooling**"** |
| *10:45-11:15* | ***COFFEE BREAK*** |
| **PARALLEL SESSIONS** 11:15-12:45 | **APMAS & ENEFM & MEDOPTICS**<br><br>**HALL 1**<br><br>Chairperson: **Ersin Kayahan**<br><br>11:15-11:45<br>**Alexey V. Feofanov**<br>Lomonosov Moscow State University, Russian Federation<br>(invited speaker)<br>**ID611-** Nanobiophotonics: decoding molecular interactions in chromatin<br><br>11:45-12:15<br>**Horace Crogman**<br>California State University Dominguez Hills, USA<br>(invited speaker)<br>**ID606-** Epigallocatechin Gallate (EGCG) Mitigates the Effects of Camptothecin-induced Oxidative Stress on Bone-like Cancer Cells (UMR 106-01 BSP)<br><br>12:15-12:45<br>**M.L. Thakur**<br>Sidney Kimmel Cancer Center, USA<br>(invited speaker)<br>**ID612-** Biophotonic imaging for noninvasive detection and therapy of oncologic diseases |
| **12:30-14:00** | ***LUNCH*** |

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| **PARALLEL SESSIONS** 14:00-16.10 | **APMAS & ENEFM & MEDOPTICS**<br><br>**HALL 1**<br><br>Chairperson: **Amela Ajanovic**<br><br>14:00-14:30<br>**Amela Ajanovic**<br>Vienna University of Technology - TU WIEN, Austria<br>(invited speaker)<br>**ID554-** Techno-economic analysis of hydrogen production and transportation<br><br>14:30-15:00<br>**Eugenia Rossi di Schio**<br>Alma Mater Studiorum - University of Bologna, Italy<br>(invited speaker)<br>**ID568-** The reuse of end-of-life Home Materials (EoLHM) in buildings' energy harvesting<br><br>15:00-15:20<br>**Qianwen Liu**<br>China Nuclear Power Engineering Co., Ltd, China<br>**ID559-** Risk-Informed Defense-in-depth Strategy for Nuclear Power Plant<br><br>15:20-15:40<br>**Vanni Lughi**<br>University of Trieste, Italy<br>**ID562-** Recyclable Composites Based on Natural and Waste Materials for Thermal Insulation Applications: An Example Of "Deep Materials Sustainability"<br><br>15:40-16:10<br>**Vladimir Krasnov**<br>Stockholm University, Sweden<br>(invited speaker)<br>**ID597-** Perspectives of energy-efficient superconducting computer |

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| 16:10-16:40 | ***COFFEE BREAK*** |
| *16:40-17:40* | **FOYER (Poster Session Area)**<br><br>Chairperson: A. Yavuz Oral<br><br>***POSTER SESSION- I***<br><br>**APMAS & ENEFM & MEDOPTICS** |

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| | ***TENTATIVE* P R O G R A M**<br>***FRIDAY, OCTOBER 11, 2024*** |
| | **APMAS & ENEFM & MEDOPTICS** |
| | **HALL 1** |
| **PLENARY SESSION** *10:30-11:15* | Chairperson**: A.Yavuz Oral**<br><br>**Dominik Zumbühl**<br>University of Basel and NCCR SPIN, Switzerland<br><br>"**ID2659**- Quantum Computing with Silicon Spins" |
| 11:15-11:45 | ***COFFEE BREAK*** |
| **PLENARY SESSION** *11:45-12:30* | Chairperson**: Ersin Kayahan**<br><br>**Meltem Izzetoglu**<br>Villanova University, USA<br><br>"**ID613-** Multimodal Diffuse Optical Methods for The Assessment of Brain Function and Injury" |
| *12:30-14:00* | ***LUNCH*** |
| **PARALLEL SESSIONS** 14:00-15:00 | **APMAS & ENEFM & MEDOPTICS**<br>**HALL 1**<br><br>Chairperson: **Bing Guo**<br><br>14:00-14:30<br>**Bing Guo**<br>Texas A&M University at Qatar, Qatar<br>(invited speaker)<br>**ID585**- Solar photovoltaic soiling loss: quantification, measurement and monitoring<br><br>14:30-15:00<br>**Satoshi Kokado**<br>Shizuoka University, Japan<br>(invited speaker)<br>**ID2593-** Theoretical study on in-plane, out-of-plane, and transverse anisotropic magnetoresistance effects for ferromagnetic films |
| 15:00-15:30 | ***COFFEE BREAK*** |

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| **PARALLEL SESSIONS** 15:30-17:10 | **APMAS & ENEFM & MEDOPTICS**<br>**HALL 1**<br><br>Chairperson: **Giuseppe Forte**<br><br>15:30-16:00<br>**Giuseppe Forte**<br>University of Catania, Italy<br>(invited speaker)<br>**ID599-** Enhancing Dye-sensitized solar cells efficiency: insights from Density Functional Theory<br><br>16:00-16:30<br>**Ladislav Kavan**<br>J. Heyrovsky Institute of Physical Chemistry, Czech Republic<br>(invited speaker)<br>**ID598-** Work Function and Photo/electrochemistry of Oxide Semiconductors (SnO2 TiO2 and ZnO)<br><br>16:30-16:50<br>**Ngonidzashe Masunga**<br>University of South Africa, South Africa<br>**ID2733-** Looking at photocatalysis from a different perspective: considering hybridisation of low energy waves with visible light for organic pollutant removal<br><br>16:50-17:10<br>**Jamil Renno**<br>Qatar University, Qatar<br>**ID2573-** Base Excitation and Finite Element Simulation for Assessing the Risk of Acoustic Induced Fatigue |

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| ***TENTATIVE* P R O G R A M**<br>***SATURDAY, OCTOBER 12, 2024*** | |
| **APMAS** | |
| **HALL 1** | |
| **PARALLEL SESSIONS** *10:30-11:50* | Chairperson: **Emil Babić**<br><br>10:30-11:00<br>**Emil Babić**<br>University of Zagreb, Croatia<br>(invited speaker)<br>**ID2668-** High entropy alloys: some prospects and problems<br><br>11:00-11:30<br>**Carmen Tuca**<br>National Institute for R&D in Physics and Nuclear Engineering, Romania<br>(invited speaker)<br>**ID2609-** Assessment of Soil Activity Levels from Decommissioning Area of A VVR-S Nuclear Research Reactor<br><br>11:30-11:50<br>**Miroslav Cieslar**<br>Charles University, Czech Republic<br>**ID2674-** Self propagating high temperature synthesis in Ti-Ni core-shell nanoparticles |
| *12:30-13:15* | ***LUNCH*** |

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| **13:15-18:00** | ***SOCIAL PROGRAM***<br><br>***13:15-18:00 THE BOAT CRUISE AROUND EXCELLENT BAYS OF BLUE LAGOON & VISIT TO St. NICHOLAS ISLAND***<br><br>***(Gathering at Congress registration desk)*** |

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| | ***TENTATIVE* P R O G R A M**<br>***SUNDAY, OCTOBER 13, 2024*** |
| | **APMAS** |
| **PLENARY SESSION**<br>*10:30-11:15* | Chairperson**: A.Yavuz Oral**<br><br>**Janusz Lewinski**<br><br>Polish Academy of Sciences, Poland<br><br>**"ID2767-** Effect of preparation methodologies on the properties of ZnO QDs and metal halide perovskites**"** |
| 11:15-11:45 | ***COFFEE BREAK*** |
| **PARALLEL SESSIONS**<br>*11:45-12:35* | Chairperson**: Victor Pavlov**<br><br>11:45-12:15<br>**Victor Pavlov**<br>Ioffe Institute, RAS, Russian Federation<br>(invited speaker)<br>**ID2731-** ULTRAFAST PHOTO-INDUCED PHENOMENA IN EUROPIUM CHALCOGENIDES<br><br>12:15-12:35<br>**Michał Zieliński**<br>Nicolaus Copernicus University, Poland<br>**ID2576-** Exploiting underlying crystal lattice for efficient computation of multi-million atoms nanostructures |
| *12:30-14:00* | ***LUNCH*** |

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| **PARALLEL SESSIONS** 14:00-15:20 | **APMAS**<br><br>**HALL 1**<br><br>Chairperson: **Wolfgang Werner**<br><br>14:00-14:30<br>**Wolfgang Werner**<br>*TU Wien, Austria*<br>(invited speaker)<br>**ID2774-** Electron Beam Attenuation and Energy Dissipation between 0 eV and Relativistic Energies<br><br>14:30-15.00<br>**Alessandra Bellissimo**<br>Technische Universität Wien, Austria<br>(invited speaker)<br>**ID2778-** Electron Emission from Graphitic Surfaces in the Low-Energy Regime<br><br>15:00-15:20<br>**Mara-Georgiana Popovici**<br>ELI-NP, Horia Hulubei National Institute for R&D in Physics and Nuclear Engineering, Romania<br>**ID2717-**Radiation protection and dosimetry in high power laser-driven experiments |
| *15:30-16:00* | ***COFFEE BREAK*** |
| *16:00-17:00* | **FOYER (Poster Session Area)**<br><br>Chairperson: A. Yavuz Oral<br><br>***POSTER SESSION- II***<br><br>**APMAS** |

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| | ***TENTATIVE* P R O G R A M**<br>***MONDAY, OCTOBER 14, 2024*** |
| | **APMAS** |
| | ***HALL 1*** |
| **PARALLEL SESSIONS** *10:30-12:00* | *Chairperson:* **Eduard Gevorkyan**<br><br>10:30-11:00<br>**Eduard Gevorkyan**<br>Moscow Witte University, Russia<br>(invited speaker)<br>**ID2605-** On the Theory of Transition Radiation of a Charge in a Waveguide Filled with an Anisotropic Magnetodielectric Medium<br><br>11:00-11:30<br>**Svetoslav Kuzmichev**<br>Lomonosov Moscow State University, Russian Federation<br>(invited speaker)<br>**ID2629-** Direct observation of Spin Exciton in Superconducting Oxypnictides by Andreev Spectroscopy<br><br>11:30-12:00<br>**Tatiana Kuzmicheva**<br>Lebedev Physical Institute RAS, Russian Federation<br>(invited speaker)<br>**ID2637-** Spectroscopic Study of K0.8Fe1.7(Se,S)2 Selenides in the Superconducting and the Normal State |
| *12:00* | ***Hotel Check Out*** |

| *PROGRAM LEGEND DESCRIPTIONS* | |
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| **ID-** | **APMAS 2024 oral presentations** |
| **ID-** | **ENEFM 2024 oral presentations** |
| **ID-** | **MEDOPTICS 2024 oral presentations** |

# *TENTATIVE* POSTER PROGRAM

## *THURSDAY, OCTOBER 10, 2024*

## *16:40-17:40*

**FOYER (Poster Session Area)**

Chairperson: A. Yavuz Oral

***POSTER SESSION- I***

## APMAS & ENEFM & MEDOPTICS

| ID | TITLE | CONTACT AUTHOR |
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| **2591** | TUNING OF SECOND ORDER PHASE TRANSITION OF NIMNGA HEUSLER-TYPE GLASS-COATED MICROWIRES. | Valentina Zhukova |
| **2604** | Influence of SAC0307-Al2O3 composite solder joints on thermal parameters of power electronics devices | Agata Skwarek |
| **2625** | Two-dimensional Valleytronic Materials: From Principles to Device Applications | Sake Wang |
| **2630** | Mesoporous SiO2-TiO2 Submicron Particles With High Photocatalytic Efficiency for Degradation of Organic Substances Under Solar and Artificial Light | Kuralay Rustembekkyzy |
| **2623** | Electronic Lock with Remote Control | Raşit Önver & Ibrahim Alpay |
| **2737** | Evaluation of Mare's Milk-Derived Exosomes as Novel Therapeutic Carriers: Comparative Isolation Techniques and Quercetin Bioavailability Enhancement | Shynggys Sergazy |
| **2751** | Modeling the operation of a gas compressor station to minimize fuel costs for protection against surge zone | Dinara Zhussupova |
| **2600** | Study and Characterization of new dosimeter MAGIC-Glytaraldehyde | Sounila Brahimi Moussa |
| **2587** | Diffusion mechanisms in superabsorbent hybrid hydrogels structures usable as water and nutrients carriers/releasers | Elena Manaila |
| **2633** | Functional borates and fluoride borates and their high-pressure modifications | Tatyana Bekker |
| **558** | Study of oxygen reduction and evolution on palladium-modified cobalt-phosphorus and cobalt-iron-phosphorus coatings | Loreta Tamasauskaite-Tamasiunaite |
| **557** | Cobalt-iron-phosphorus catalysts for hydrogen and oxygen evolution | Eugenijus Norkus |
| **570** | ICT FOR SMART AND ENERGY EFFICIENT BUILDINGS | Dimitar Karastoyanov |
| **572** | NEW ANTHRONE DERIVATIVES AS LIGHT EMITTING SUBSTANCES | Jelena Kirilova |
| **580** | Development of On-Board Charger and Solar inverter using Power Module based on Wide Bandgap | Yong-Su Noh |
| **581** | Phase Shift Modulation Method for Low Voltage-Light Load Area of Load Resonant Converter with Wide Output Voltage | Dongmyoung Joo |

# *TENTATIVE* POSTER PROGRAM

## *SUNDAY, OCTOBER 13, 2024*

## *16:00-17:00*

**FOYER (Poster Session Area)**

Chairperson: A. Yavuz Oral

***POSTER SESSION- II***

## APMAS

| ID | TITLE | CONTACT AUTHOR |
|---|---|---|
| **2607** | Evaluation of hardness and composition of SiCN films deposited by HWCVD method | A. Izumi |
| **2594** | Covalent Organic Frameworks for Homojunction SMOSCs and Electrode Materials | Ion grosu |
| **2667** | Synthesis of metal-organic framework compounds on PET track-etched membranes for CO2 capture | Ilya Korolkov |
| **2669** | Skin dose assessment for patients undergoing medical radiography by LiF:Cu,Mg,P, BeOSL and halide film passive dosimeter systems | Felicia Mihai |
| **2619** | Novel 9,9’-Dispiro- and Trispirobifluorene Building Blocks for the Access to Smart Supramolecular and Covalent Organic Frameworks | Ioana Georgeta Grosu |
| **2677** | Towards the theory of crystal growth ahead of the moving solid-liquid phase interface: A U-shaped anomalous behaviour of the crystallization velocity of melt undercooling | Liubov Toropova |
| **2592** | Nonvolatile memory cells based on thin film disorder chalcogenide semiconductors | Aliaksandr Smirnov |
| **2750** | BENZENE OXIDATION OVER Pt LOADED ON FLY ASH ZEOLITE X | Yuri Kalvachev |
| **2598** | Picosecond Ultrasonic Photoacoustic Emitter Based on Graphene-Decorated Gold Nanoparticles | Aleš Mrzel |
| **2608** | Evaluation of tritium release from contaminated HEPA filters in extreme conditions | Cristian Postolache |
| **2572** | Viscoelastic response of sugar beet root tissue to mechanical loading | Krzysztof Gołacki |
| **2627** | Manufacturing of biocompatible coatings for medical implants using robotic microplasma spraying: ensuring coating uniform thickness and specified porosity | Darya Alontseva |
| **2639** | Additive robotic microplasma spraying of multilayer bioactive coatings | Albina Kadyroldina |
| **2647** | In vitro testing of microplasma sprayed titanium and hydroxyapatite coatings on Ti6Al4V alloy substrates: the effect of materials and spraying parameters on coating bioactivity and corrosion resistance | Yuliya Safarova (Yantsen) |
| **2626** | Enhancing microbial resistance of additive manufactured titanium implants by magnetron sputtering of Nb-Cu and Ta-Cu coatings | Darya Alontseva & Bagdat Azamatov |
| **2638** | Manufacturing and research of Ta and Ta-Cu bioactive and antimicrobial coatings of titanium endoprosthesis implants | Darya Alontseva |
| **2641** | Recycling of waste aluminium foil as a low-carbon feedstock substitute | Jan Najser |

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| **2697** | Harnessing PEGylated PLGA Nanoparticles for Drug Delivery of Cdc42 Inhibitor: Unveiling Anti-Cancer Efficacy in Colon Cancer Cell Lines | Aislu Yermekova |
| **2713** | Development of 3D coffee ring structure on soft compliant PDMS substrate and interplaying factors | Maryam Jalali |
| **2698** | A study of in vitro cytotoxicity of fullerene- and fullerenol-dihydroquercetine complexes: possible implications for the treatment of neurodegenerative disorders | Sholpan Askarova |
| **2743** | ANTI-ICING PERFORMANCE OF TRANSPARENT EPOXY-BASED NANOCOMPOSITE COATINGS | Bartlomiej Przybyszewski |
| **2681** | Chitosan based new ReRAMs for Green Computing | SREEDEVI VALLABHAPURAPU |
| **2761** | A Compositional Engineering and Phase Transitions of DMAxFA1-xPbI3 Perovskites | Iwona Justyniak |
| **2723** | Synthesis, molecular docking and in vitro α-glucosidase inhibition potential of novel thiourea derivatives based on 3-aminopyridin-2(1H)-ones | Zarina Shulgau |