DAY 1

Wednesday June 21, 2023

Hall Name: MESTRAL

Day - 1 June 21, 2023

09:30 - 09:55 Registrations and Badge Pickup

09:55 - 10:00 Moderator Introduction

Keynote Session

10:00 - 10:30 Title: Creating of Individual Nanodevices Based on Could Field Emission From Individual Carbon Nanotubes Using Nanomanipulation

Svetlana von Gratowski, Electronics Russian Academy Of Sciences, Russia

Coffee Break: 10:30 - 10:45

Sessions: Chemical Engineering |Catalysis in Green Chemistry|Catalysis and Pyrolysis| Photocatalysis|Catalysis in Nanotechnology |Biochemical Engineering| Catalysis for Biorefineries| Electrochemistry and Electrochemical Engineering | Organix and Inorganic Chemistry |Nano - Imaging for Diagnosis, Therapy and Delivery| Nanotechnology Applications|Nanofabrication, Nanoprocesing & Nanomanufacturing

Session Chair

Palash Kumar Mollick, University of the Basque Country, Spain

10:45 - 11:05 Title: Silver Nanoparticles as Effective and Recyclable Catalyst for the Selective Oxidation of Alcohols

Agnieszka Krogul - Sobczak, University of Warsaw, Poland

11:05 - 11:25 Title: Comparative Study of Conventional and Plasma Catalysed Steam Reforming Process for Green Hydrogen Production from Plastic

Palash Kumar Mollick, University of the Basque Country, Spain

11:25 - 11:45 Title: Influence of Sulfiding Agent on the Chemical - Physical Properties and Catalytic Pathway of CoMoSx Catalysts in the HDT Process of o - Xylene

Alessandra Palella, CNR - ITAE, Italy

11:45 - 12:05 Title: Photo Catalytic Synthesis of Chiral Molecules in Flow

Maurizio Benaglia, The University of Milan, Italy

12:05 - 12:25 Title: 3D Radar Sensor Fusion For High - Precision Human Lesion Identification

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12:25 - 12:45 Title: High - Speed Scanning Ion Conductance Microscopy (HS - SICM) Revealing Nanoscale Physical Features Of Irradiation - Treated Breast Cancer Cells

Masahiro Yamazaki, Division of Cancer Cell Biology, Cancer Research Institute of Kanazawa University, Japan

Group Photo: 12:45 - 13:00

Lunch Break: 13:00 - 14:00

Virtual Presentations

Electro - Chemistry and Electro - Analytical Chemistry | Catalysis for Energy|Chemical Engineering| Photocatalysis| Biochemical Engineering |Electrochemistry and Electrochemical Engineering | Material Chemistry and Polymer Chemistry| Nano - Imaging for Diagnosis| Therapy and Delivery| Nanobiotechnology | Nanomaterials and Nanotechnology

Session Chair
Abhispa Sahu American Nano, LLC, USA

14:00 - 14:15 Title: Plastic Trash to Monomers and Intermediates – PTMI

Anne M. Gaffney, University of South Carolina, USA

14:15 - 14:30 Title: Persistent luminescence From Eu^{2+} Doped And Co - Doped Inorganic Aluminate Host Materials

Leelakrishna Reddy, University of Johannesburg, South Africa

14:30 - 14:45 Title: Fluorographite Nanoplatelets Based Resin Membranes for Water Purification

Abhispa Sahu, American Nano, LLC, United States of America

14:45 - 15:00 Title: Calculation of Geometric Structure, Electronic Characteristics, Vibration Frequencies and Thermodynamic Properties of C 11 H 18 -C 14 H 24 Alkyladamantanes According to DFT

Saginayev A, Utebaev Atyrau of Oil and Gas University, Kazakhstan

15:00 - 15:15 Title: Vanillin: Bioconversion of the World's Most Popular Flavor

Wa Ode Cakra Nirwana, University of Brawijaya, Indonesia

15:15 - 15:30 Title: Deciphering ORR in HTPEMFC

Panagiotis I. Giotakos, Foundation for Research and Technology Hellas, Greece

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Coffee Break: 15:45 - 16:00

16:00 - 16:15 Title: Development of Metal Sulfide - Based CO_2 Reduction Electro Catalysts using Machine Learning Technique

Akira Yamaguchi, Tokyo Institute of Technology, Japan

16:15 - 16:30 Title: Towards an Innovative Combined Process Coupling Biodegradation and Photo - Oxidation for The Removal of Pharmaceutical Residues

Gael Plantard, PROMES, UPR 8521 CNRS, France

16:30 - 16:45 Title: Continuous Flow Photoreactor Undergoing Variable Simulated Irradiation Conditions: Experimentations and Modeling

Gael Plantard, PROMES, UPR 8521 CNRS, France

16:45 - 17:00 Title: Electrochemical Biosensing Of Uric Acid

Minakshi Sharma , Maharshi Dayanand University , India

17:00 - 17:15 Title: Results On Viral Bio - Signature's Derivation, It's Evolution And Far To Evanescent Field Frequencies Convergence

KF Kaspareck, Energy & Engineering Consulting, GR, Italy

17:15 - 17:30 Title: Biological Activities Of Centaurea Urvillei Subsp. Urvillei And Its Green Synthesized Silver Nanoparticles

Burcu Sümer Tüzün, Ege University, Turkey

Networking/Panel Discussions: 17:30 Onwards

Day 1 Concludes

DAY 2

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Thursday **June 22, 2023**

Hall Name: MESTRAL

Day 2 - June 22, 2023

Plenary Session

10:00 - 10:30 Title: Integrated Wavemeter for Atomic Clocks Stabilization

Philippe Velha, DISI, University of Trento, Italy

Keynote Session

10:30 - 11:00 Title: Non - Destructive Testing of GFRP Composites Using Terahertz Radiation

Waldemar Swiderski, Military Institute of Armament Technology, Poland

Coffee Break: 11:00 - 11:15

Sessions: Materials for Energy Applications| Advanced Energy Materials| Graphene Technology and 2D Materials| Materials Science and Engineering | Advanced Nanomaterials - production, Synthesis and Processing| Ceramics and Composite Materials| Nanlinear Lasers and Nonlinear Optics| Optical properties of Nano structures | Physics and Chemistry of Materials| Nanomaterials and Nanotechnology| Materials Science and Engineering | Future Drifts in Lasers, Optics and Photonics |Nonlinear Lasers and Nonlinear Optics| Optical Properties of Nanostructures |Fiber Optics and Fiber Laser Technologies|Ultrafast and Ultra - Intense Lasers, Laser Diagnostics |Optical Engineering and Optical Networking|Novel Optical Materials and Applications Semiconductors and Superconductors | 3D Printing technologies

Session Chair

Georges Boudebs, LPhiA / Univ Angers, France

11:15 - 11:35 Title: Lead Free ($BaZr_{0.2}Ti_{0.8}O_3$) and Lead Based ($PbZr_{0.52}Ti_{0.48}$) Flexible Thick Films: Structural Properties and Potential Use as Energy Storage and Energy Harvesting Systems

JelenaBobic, University of Belgrade, Serbia

11:35 - 11:55 Title: Energy Harvesting Potential Of Polymer Composites

Mirjana Vijatovic Petrovic, University of Belgrade, Serbia

11:55 - 12:15 Title: Effect Of Heat Treatment Parameters On The Carbide Spheroidization OF 0.48% Carbon Steels

Nandita Gupta, The DEptt of Foundry and Forge Technology, India

12:15 - 12:35 Title: Design Of New 2D Materials Using Computational Intelligence

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12:35 - 12:55 Title: Educational and Research Experience in Clean Energy Hydrogen Fuel Cells for Electricity Generation

Alla Bailey, Rochester Institute of Technology, USA

Group Photo: 12:55 - 13:05

Lunch Break: 13:05 - 14:05

14:05 - 14:25 Title: Nanopatterns Fabricated by Fluid FM as Potential Surfaces for Platelet Storage

Gurunath Apte, Institute for Bioprocessing and Analytical Measurement Techniques, Germany

14:25 - 14:45 Title:Tailoring Of $BaCe_{0.9}Y_{0.1}O_{3-\delta}$Electrolyte Properties by Co - Doping

AleksandarRadojković, University of Belgrade, Serbia

14:45 - 15:05 Title: Photo - Thermal Efficiency of Gold Nano - Particle Suspensions Using cw Z - scan Technique in The Visible Range

Georges Boudebs , LPhiA / Univ Angers, France

15:05 - 15:25 Title: UV Micro LED Chip Performance, Superiority, and the Future

Yoshihiko Muramoto, Nitride Semiconductors Co., Ltd, Japan

15:25 - 15:45 Title: Influence of Magnetic Field on Plasma Parameters & Surface Modification of Cu-Alloy after Fs Laser Irradiation

Asadullah Dawood, National Excellence Institute, Pakistan

15:45 - 16:05 Title: Investigation of Cladding Interfacial Microstructure of Titanium Alloy on Structural Carbon Steel Prepared by Friction Stir Processing

Abdulrahman Aljabri, Islamic University of Madinah, Saudi Arabia

16:05-16:25 Title: CuFeOx-Based Nano-Rose Electro Catalysts for Oxygen Evolution Reaction (OER) Prepared by Phytochemical Assisted Green Synthesis Process

Hamad Almohamadi, Islamic University of Madinah, Saudi Arabia

Coffee break & Poster Session - 16:25 Onwards

SPEC-P-01 Title: Controlling The Emission Of $CsPbBr_3$ Nano - Crystals. Post - Synthesis Treatment Via Ion Exchange.

Egle Ezerskyte, Vilnius University, Lithuania

SPEC-P-02 Title: Recyclable Environmentally Friendly Ionic Liquid Supported Organotelluride Oxidation Catalyst

Shinichi Koguchi , Tokai University, Japan

SPEC-P-03 Title: Adsorptive Desulfurization of Pentane Plus with High Aromatics Content by An Industrial Molecular Sieve

SPEC-P-04	Title: Growth and Characterization of BSCCO High TC Superconductor Thin Films for Possible Terahertz Device Applications **Kensuke Nakajima,** Yamagata University Japan
SPEC-P-05	Title: The Study On The Sintering Conditions To Fabricate Copper Foam Metal **Yong- Sil Ahn,** Pukyong National University, Korea (south)
SPEC-P-06	Title: Nanostructured Silicon And Aluminum Thin Films For All - Silicon Optoelectronics **A. Smirnov,** Belarusian State University Of Informatics And Radioelectronics
SPEC-P-07	Title: Tailoring The Optical Properties Of $Cspbbr_3$ Quantum Dots Via Post - Synthesis Modification Using Znx_2 Complex Solutions **Vaidas Klimkevicius,** Vilnius University, Lithuania
SPEC-P-08	Title: Ultrasound - Induced Hot - Injection Synthesis of All - Inorganic Perovskite Quantum Dots **Arturas Katelnikovas ,** Vilnius University, Lithuania
SPEC-P-09	Title: On Diversity of Localized Modes in Presence of Defects and Nonlinearity in SSH Waveguide Array **Kolja Bugarski,** University of Belgrade, Serbia
SPEC-P-10	Title: Playing With the Artificial Flux in Diamond Plaquettes in Different Photonic Lattices **Mirjana Stojanović,** University of Belgrade, Serbia
SPEC-P-11	Title: Probing the Efficiency of Lasing Zero - Mode by Changing the Vortex Distortion Phase **Milica Nedić,** University of Belgrade, Serbia
SPEC-P-12	Title: Dual - Wavelength Distributed Feedback Fiber Laser in Yb - Er Co - Doped Fiber **Xijia Gu,** Toronto Metropolitan University, Canada
SPEC-P-13	Title: Photophysical Properties of Alq_3 and DCM Derivatives and Their Application in Amplified Spontaneous Emission **Patricija Paulsone,** University of Latvia, Latvia
SPEC-P-14	Title: Fast Measurement of Water Content in Petroleum by Means of Terahertz Time - Domain Spectroscopy **Ihor Krapivin,** Center for Physical Sciences and Technology, Lithuania
SPEC-P-15	Title: Novel Computer - Vision Based Methods for Micro - Device Reliability **Hua Lu,** Toronto Metropolitan University , Canada
SPEC-P-16	Title: Thermodynamic Assessment of The Sorption Enhanced Steam Reforming of Biomass Fast Pyrolysis Volatiles **Pablo Comendador Morales,** University of the Basque Country, Spain

Day 2 Concludes

Energy harvesting potential of polymer composites

M. Vijatovic Petrovic[1], F. Cordero[2], E. Mercadelli[3], E. Brunengo[4], N. Ilic[1], C. Galassi[3], Z. Despotovic[5], J. Bobic[1], A. Dzunuzovic[1], P. Stagnaro[4], G. Canu[6], F. Craciun[2]

[1] Materials Department, Institute for multidisciplinary research, University of Belgrade, Belgrade, Serbia
[2]CNR-ISM, Istituto di Struttura della Materia, Rome, Italy
[3]CNR-ISTEC, Istituto di Scienza e Tecnologia dei Materiali Ceramici, Faenza, Italy
[4]CNR-SCITEC, Istituto di Scienze e Tecnologie Chimiche "Giulio Natta", Genoa, Italy
[5] Institute Mihajlo Pupin, Volgina 15, 11000 Belgrade, Serbia
[6] CNR-ICMATE, Istituto di Chimica della Materia Condensata e di Tecnologie per l'Energia, Genoa, Italy

Abstract:

Energy is available all around us in different forms and shapes such as from sun, wind, waves, vibrations etc. The enormous amount of mechanical energy released in everyday life by human walking, transportation movement, sound waves and other, represent renewable and safe energy source. Piezoelectric generators exhibit a great potential for powering up low-power portable devices and self-powered electronic systems by extraction of mechanical energy. Employment of lead-free piezoelectric materials will be a breakthrough of a completely new type of safe and harmless production of energy for daily life. Recent challenge in electronics is also utilization of flexible electronics with the ability to bend into diverse shapes which expands the applications of modern electronic devices in different areas.

Polymer PVDF/piezoelectric ceramics, flexible composite films were prepared by hot pressing method. The influence of hot pressing method on the formation of electroactive PVDF phases in the polymer was proven by FTIR analysis. DSC analysis have shown the change of PVDF crystallinity degree in the flexible films with addition of ceramics filler particles. The dielectric permittivity value increased with the addition of filler in the polymer matrix while the relaxation processes were governed mostly by the PVDF matrix. Polarization of flexible films enhanced the formation of PVDF electroactive β- phase in the samples. Energy harvesting potential was studied by measuring of voltage output under the impulse hammer load.

Biography of presenting author

Dr. Mirjana Vijatovic Petrovic studied at the Faculty of Technology and Metallurgy, Belgrade University, Serbia and she completed her BSc in Inorganic Chemical Technology in 2006. She received her PhD degree in Material Science in 2010 from the University of Belgrade, Serbia and from 2021 she is Full Research Professor at the Institute for Multidisciplinary Research, Belgrade University. She has published more than 50 research articles in SCI journals.

Details of presenting author to be mentioned in the certificate:

Name: Mirjana Vijatovic Petrovic
Affiliation: University of Belgrade, Institute for Multidisciplinary Research
Country: Serbia

Other Details:

Presentation Category: Oral Presentation
Session Name: Advanced Energy Materials
Email: miravijat@yahoo.com
Alternative email: mira@imsi.rs
Contact Number:+381643255722
Twitter/Facebook/LinkedIn: www.linkedin.com/in/mirjana-vijatovic-petrovic-168b2111

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June 21-22, 2023 | Valencia, Spain

Lead Free ($BaZr_{0.2}Ti_{0.8}O_3$) And Lead Based ($PbZr_{0.52}Ti_{0.48}$) Flexible Thick Films: Structural Properties And Potential Use As Energy Storage And Energy Harvesting Systems

Jelena Bobic,[1] Nikola Ilic,[2] Zeljko Despotovic,[1] Adis Dzunuzovic,[3] Robertas Grigalaitis,[4] Ivan Stijepovic,[1] Mirjana Vijatovic Petrovic

[1]University of Belgrade, Institute for Multidisciplinary Research, Belgrade, Serbia

[2]Mihajlo Pupin Institute, University of Belgrade, Belgrade, Serbia

[3]Faculty of Physics, Vilnius University, Vilnius, Lithuania

[4]Department of Materials Engineering, Faculty of Technology Novi Sad, University of Novi Sad, Novi Sad 21000, Serbia

In the last year energy harvesters based on piezoelectricity from mechanical vibration has emerged as the very promising devices that are explored extensively for its functionality in energy technologies. In this paper a series of flexible lead-free BZT/PVDF and lead based PZT/PVDF piezocomposites with variable filler content up to 50 vol. % have been prepared by hot pressing method. Structure and morphology of BZT and PZT powders as well as distribution of piezo-active filler in obtained flexible films were characterized by XRD and SEM analysis. Total amount of electro active phase (% F_{EA}) of PVDF is higher in PZT-based films in comparison with BZT based ones but the contribution of more desirable β-phase is higher in BZT-PVDF films. In both composite dielectric permittivity's was increased in contrast to their polymer PVDF host matrix, but also displayed decreased breakdown strength and raised energy loss. In addition, the remnant polarization (P_r) and leakage current were also investigated to evaluate the breakdown strength in both types of flexible films. Calculations of storage energies and output voltage obtained for the investigated materials revealed an increasing trend with increasing amount of BZT and PZT active phase. The maximum storage energy of 0.42 J/cm^3 at 390 kV/cm^3 was obtained for PZT-PVDF (40-60) films while the maximum output voltage of about 10 V was obtained for PZT-PVDF (50-50) flexible film. In addition, comparisons between properties of lead based and lead free flexible films as well as potential use of those films as energy storage and energy harvesting systems were considered.

Biography

Dr. Bobicis a Research Associate Professor at Institute for Multidisciplinary Research, University of Belgrade. She studied Inorganic Chemical Technology at Faculty of Technology and Metallurgy, University of Belgrade and graduated as B.Sc in 2006. Then she joined the research group of Prof. Stojanovic and received PhD degree in Chemistry and Engineering of Materials in 2012. She has published more than 45 research articles in SCI (E) journals.