

# AdvPhotoCat EE-2023

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The 4<sup>th</sup> International Workshop Advances on Photocatalysis  
including Environmental and Energy Applications

25th–28th July 2023

Hellenic Mediterranean University,  
Heraklion, Crete Greece  
Hybrid edition

## ORGANIZERS



## TOPICS

- \* Basic research on photocatalysis;
- \* Photocatalytic materials;
- \* Photo-electro-chemistry;
- \* Photocatalysis in life sciences;
- \* Photocatalysis in agro-food and aquacultures;
- \* Green chemistry;
- \* Modern trends in clean energy production and storage;
- \* Modern trends in environmental remediation and protection;

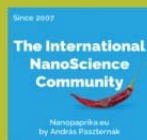
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## MEDIA PARTNERS



<https://photocatalysis-workshop.eu/>

## Program Final

### Day 1

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|------------------------|--|
| <b>25.07.2023</b>      |  |
| <b>10 am -14 pm</b>    | <b>Registration and Online connectivity trials</b>   |
| <b>14 pm - 15.30pm</b> | <b>Opening Cermony Amfiteater Kamari (Chairs M Suche, E Koudoumas)</b>   |
| 14:00-14:15            | Welcome at HMU by The HMU Research Rector  |
|                        | <b>Organizers Presentations:</b>   |
| 14:20-14:30            | IMT General Director Adrian Miron Dinescu  |
|                        | TUD Prof. Declan Mc Cormack  |
|                        | AUO Prof Suresh Pillai   |
|                        | Petru Poni Institute Dr Anton Airinei  |
|                        | UPB Prof. Dr. Anton Fikai  |
|                        | NRC Prof Hossam El Nazer   |
| 15:20-15:30            | Northeastern University Dr. Muhammad Fahad Ehsan   |
| <b>15:30</b>           | <b>Session 1 Chair Suresh Pillai,</b>  |
| 15:30-16:00            | <b>Prof. Dr. Declan McCormack,</b><br><i>Crystallization Mechanisms in Closed Systems – A Zinc Oxide Study</i>   |
| 16:00-16:30            | <b>Dr. Christos Sargentis,</b><br><i>Analytical instruments portfolio of Helix Squared company</i>   |
| <b>16:00-16:30</b>     | <b>Cofee break</b>   |
| <b>16:30</b>           | <b>Session 2 Chair M Suche</b>   |
| 16:30-17:00            | <b>Dr. Petronela Pascariu,</b><br><i>Rare earth doped metal oxide nanostructures as photocatalysts for pollutants degradation</i>  |
| 17:00-17:30            | <b>Dr. Eva Vasilaki,</b><br><i>Composite coatings based on rGO modified TiO<sub>2</sub> nanoparticles and a natural polymer, with a strong antimicrobial activity under visible-light irradiation and stimuli-renewable properties</i> |
| 17:30-17:50            | <b>Prof. Emmanouel Koudoumas,</b><br><i>Development of novel nanocomposite materials with tunable conductivity</i>   |
| 17:50-18:10            | <b>Dr. Diana Gilea,</b><br><i>Plasmonic gold supported on ZnO/CuO/ZnAl<sub>2</sub>O<sub>4</sub> and ZnO/ZnAl<sub>2</sub>O<sub>4</sub> mixed oxides for solar-driven catalysis of organic pollutants from water</i>                     |
| 18:10-18:30            | <b>Dr. Abdul Wafi,</b><br><i>Preparation and photocatalytic activity of nano-spherical N-TiO<sub>2</sub> toward the degradation of salicylic acid, methyl blue, and rhodamine B</i>  |
| 18:30-18:50            | <b>Dr. André Torres-Pinto,</b><br><i>The impact of precursor on the preparation of carbon nitride catalysts for phenol degradation</i>   |
| 18:50-19:10            | <b>Dr. Keerthi M. Nair,</b><br><i>MIL-101(Fe) template-directed growth of NiFe LDH as an efficient catalyst for heterogeneous photo-Fenton process</i>   |
| 19:10-19:30            | <b>Dr. Gabriela Toader,</b><br><i>Photo-crosslinkable hydrogel films containing phthalocyanine for immediate decontamination of sensitive surfaces</i>   |
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| 20:00       | <b>Welcome cocktail and Poster Session 1 Chairs C. Pachiu and Yasser Mahmoud</b>   |
| 20:00-22:00 | <b>8 Posters +streaming</b><br><b>Drd. Valentin Tudose,</b><br><i>Materials for fishnets: fabrication and their antifouling properties</i><br><b>Dr. Ahmed A. Elnazer,</b><br><i>Synthesis of Graphene from Graphite and its Environmental Applications</i><br><b>Dr. Cristina Pachiu,</b><br><i>Raman study of novel PVDF/TiO<sub>2</sub>/graphene composite fibers for photocatalytic applications</i><br><b>Drd. Cristina Postolachi,</b><br><i>High pulsed laser energy to produce structural morphology of thin layers for green chemical processes</i><br><b>Dr. Pascariu Petronela,</b><br><i>Modified nanosized spinel ferrite based materials with highly proficient catalytic activity</i><br><b>Drd. Andrianna Mpouranda,</b><br><i>Materials with ZnO for food packaging</i><br><b>Dr. Kyriakos Mouratis,</b><br><i>V<sub>2</sub>O<sub>5</sub> materials fabrication and properties for potential photocatalysis</i><br><b>Dr. Laura Clarizia</b><br><i>A sustainable approach for green synthesis from biorefinery products: photooxidation of ethyl alcohol by employing cupric ion as oxidizing agent</i><br><b>Dr. Nikolaos Vrithias</b> |

### Day 2

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| <b>Optional excursion Agios Giorgos Selinari Monastery, Spinalonga Island, BBQ on the beach</b> |  |
| 19:30-20:30   | <b>Project G5868: New germicide nanocomposites for biological protection and decontamination July 28th 2022 – July 28th 2025 Meeting</b> |

### Day 3

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| <b>27.07.2023</b> |   |
| <b>9:00</b>       | <b>Session 3 Chairs D. McCormack and Y. Mahmoud</b>   |
| 9:00-9:30         | <b>Prof. Suresh Pillai,</b><br><i>New Insights into Nanomaterials for Photocatalytic Applications</i>   |
| 9:30-10:00        | <b>Dr. Maria Leonor Matias,</b><br><i>Photocatalytic behavior of visible-light activated g-C<sub>3</sub>N<sub>4</sub>/TiO<sub>2</sub> heterojunctions</i>   |
| 10:00:10:20       | <b>Dr. Morjène Latifa,</b><br><i>TiO<sub>2</sub> Supported on Posidonia Oceanica fiber as low cost photocatalyst for phenol photodegradation</i>  |
| 10:20-10:40       | <b>Dr. Niloofar Haghshenas,</b><br><i>Tuning the visible-light-driven photocatalytic properties of multi-decorated TiO<sub>2</sub> by noble metals towards both propionic acid and NO<sub>x</sub></i> |
| 10:40-11:00       | <b>Dr. Metwally Madkour,</b>  |

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|                    | <i>Novel multinary chalcogenide based nanoheterostructures: Solar active and eco-friendly nanocatalysts for photodegradation of pharmaceutical wastewater pollutants</i>  |
| <b>11:00-11:30</b> | <b>Coffee break</b>   |
|                    | <b>Session 4 Chairs P. Pascariu and M L Matias</b>  |
| 11:30-12:00        | <b>Prof Dr. Sami Rtmi,</b><br><i>Concomitant photocatalytic bacterial inactivation and pollutants removal on nanostructured sputtered surfaces</i>  |
| 12:00-12:30        | <b>Prof. Dr. Anton Fikai,</b><br><i>Chemical Approaches based on a Complex Surface Modification leading to antimicrobial/antibiofilm as well as degradative capabilities</i>  |
| 12:30-12:50        | <b>Dr. Kourosh Nasr Esfahani,</b><br><i>Mathematical Modeling and Simulation of Ozonation of Wastewater Containing Organic Matter</i>   |
| 12:50-13:10        | <b>Dr. Kris O'Dowd,</b><br><i>The Development of Polypropylene Transparent Jerry Cans as affordable photoinactivation reactors</i>  |
| <b>13:10-13:30</b> | <b>Dr. Maali-Amel Mersel,</b><br><i>The effect of the preparation conditions on the photocatalytic H<sub>2</sub> production of noble-metal-free ZnS-CdS semiconductors</i>  |
| 13:30-15:00        | <b>Light lunch</b>  |
|                    | <b>Session 5 Chairs A. Fikai and M. Suchea</b>  |
| <b>15:00-15:30</b> | <b>Dr. Muhammad Tayyab,</b><br><i>A binary dumbbell visible light driven photocatalyst for simultaneous hydrogen production with the selective oxidation of bezyl alcohol to benzaldehyde</i>   |
| <b>15:30-16:00</b> | <b>Prof. Dr. Muhammad Fahad Ehsan,</b><br><i>Self-Cleaning and Regenerative Cathode Materials for Cost-Effective and Sustainable Water Treatment</i>  |
| <b>16:00-16:20</b> | <b>Dr. Cosmin Romanitan,</b><br><i>Rietveld refinement of X-ray diffraction patterns in photocatalytic metal oxides</i>   |
| <b>16:20-16:40</b> | <b>Dr. Manuela Manrique-Holguín,</b><br><i>Modification of TiO<sub>2</sub> with nitrogen via sol-gel method and the role of ammonia. Not all that generating visible light absorption in TiO<sub>2</sub> is doping</i>  |
| <b>16:40-17:00</b> | <b>Dr. Marcela Frías Ordóñez,</b><br><i>Ag-modified SrTiO<sub>3</sub> one-pot synthesis: combined effect of Ag-decoration and Ag-doping</i>   |
| <b>17:00-17:20</b> | <b>Dr. Melissa Galloni,</b><br><i>Photo- and piezo-catalysis as the winning pair for the fast and efficient mineralization of ibuprofen by bismuth oxybromide under solar light irradiation</i>   |
| 17:20              | <b>Coffee break</b>   |
| <b>18:00-19:00</b> | <b>Poster Session 2 Chairs C. Romanitan and K. Mouratis</b>   |
|                    | <b>6 Posters</b><br><b>Dr. Lynda Golea,</b><br><i>Synthesis and Characterization of Schiff base derivatives for efficient photodegradation of Methylene Blue</i><br><b>Dr. Alexandru Cocean,</b><br><i>Detection of IR vibration bands in environmental analysis using GAUSSIAN 6 software</i><br><b>Drd. Georgiana Cocean,</b> |

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|       | <p><b>Saccharomyces cerevisiae and Fourier Transform Infrared Spectroscopy technique used to identify photo-chemical processes during laser ablation of hemp stalk</b></p> <p><b>Dr. Titus Sandu,</b><br/><i>Extracting physical parameters from dielectric spectra of doped ZnO/graphene nanocomposites</i></p> <p><b>Dr. Andreea Loredana Gavrilă,</b><br/><i>Activating multiple vacancies defects by the structural memory of Zn-rich layered double hydroxides toward tailoring the photocatalytic degradation of organic pollutants from water</i></p> <p><b>Dr. Denis Cutcovschi</b><br/><i>Synergetic adsorption-photocatalytic degradation of organic pollutants on ZnAl and Ag<sub>2</sub>ZnAl layered double hydroxides and the derived mixed oxides</i></p> |
| 20:00 | <b>Festive Dinner Archanes Village</b>  |

#### Day 4

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| <b>28 07.2023</b>  |  |
| <b>9:00</b>        | <b>Session 6 Chairs A. Mocanu and E. Koudoumas</b>   |
| 9:00-9:30          | <b>Prof. Dr. Hossam El Nazer,</b><br><i>Greenhouse gases mitigation by photocatalysis</i>  |
| 9:30-10:00         | <b>Prof. Dr. Gabriela Carja,</b><br><i>Engineering heterostructures of Zn-rich layered double hydroxides and gold nanoparticles for plasmon-enhanced catalysis</i>                 |
| 10:00-10:20        | <b>Prof. Dr. Yasser Mahmoud A. Mohamed,</b><br><i>Implementation of Photocatalysts in Organic transformation and Environmental Applications</i>                                    |
| 10:20-10:40        | <b>Dr. Nishanth Thomas,</b><br><i>Effect of synthesis protocols in the photo-fenton activity of zinc ferrites for the degradation of acetaminophen pollutant</i>                   |
| 10:40-11:00        | <b>Dr. Shankamma Kalikeri,</b><br><i>Nanotechnology in Wastewater Management: A New Paradigm for Wastewater Treatment</i>  |
| <b>11:00-11:30</b> | <b>Coffee break</b>  |
|                    | <b>Session 7 Chairs A. Elnazer and H. El Nazer</b>   |
| 11:30-12:00        | <b>Dr. Mocanu Alexandra,</b><br><i>ZnO-polymer-based membranes for wastewater treatment and environment protection</i>   |
| 12:00-12:20        | <b>Dr. Stephanie Sarrouf,</b><br><i>Degradation of Ibuprofen in a flow-through system by the Electro-Fenton Process activated by two iron-sources</i>                              |
| 12:20-12:40        | <b>Dr. Mirela Sucheă,</b><br><i>New germicide nanocomposites for biological protection and decontamination</i>   |
| 12:40-13:00        | <b>Dr. Martina Lenzuni,</b><br><i>From trash to treasure: cotton waste transformed into photocatalytic carbon dots with antibacterial properties under Vis-NIR light</i>           |
| 13:00-14:00        | <b>Poster Session 3 Chairs M Sucheă and R. Marinescu</b>   |
|                    | <b>5 Posters</b><br><b>Dr. Mohamed El-Qelish,</b><br><i>Preparation and characterization of novel composites for application in photocatalytic industrial wastewater treatment</i> |

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|                    | <p><b>Dr. Mekdes Gerawork,</b><br/> <i>Remediation of Textile Industry Organic Dye Waste by Photocatalysis Using Eggshell Impregnated ZnO/CuO Nanocomposite</i></p> <p><b>Dr. Heba K. El- El-Kholly,</b><br/> <i>Surface Decoration of Zirconium Oxide with Bismuth sulfide Catalysts for Photocatalytic Degradation of Red dye 195</i></p> <p><b>Fatiha Siahmed,</b><br/> <i>Synthesis And Characterization Of Starch-Based Nanocomposites Reinforced With Fesib Powder</i></p> <p><b>Dr. Elzahraa A. Elgohary,</b><br/> <i>Insights into photocatalytic water disinfection using semiconductors – A review</i></p> |
| <b>14:00-15:00</b> | <b>Light lunch over closing remarks</b>  |