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# EURO-ASIAN CONFERENCE

ON

## Sustainable Nanotechnology, Environment, & Energy (SNE2-2024)

*Organized by*

**Research & Incubation Centre**

**Rayat Bahra University, Mohali, Punjab, India**

*in association with*

**National University of Singapore, University of Salento, Italy &  
University of Montpellier, France**



Join us



15<sup>th</sup> - 16<sup>th</sup> October, 2024

HYBRID MODE

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## EURO-ASIA CONFERENCE ON SUSTAINABLE NANOTECHNOLOGY, ENVIRONMENT, AND ENERGY (SNE2-2024)

### Instructions

- The presenter's allotted time for presentation is 10 min with 2 mins of Q & A.
- The audience to keep their cams and audio off. Also, any question from the audience is typed into the classroom chat which will be taken up by the session chair to the presenter after the presentation.
- All presenters within the time slot i.e., before lunch or post-lunch to be available online as anyone can be called upon for presentation to avoid unnecessary delays.
- The session chair will indicate the presenter using an alarm (Use mobile alarm) through AUDIO regarding the presentation time left (at 8 mins) without interrupting the presenter.
- All decisions of the session lie within the jurisdiction of the session chairs.

### Technical Session 1 (DAY-1); October 15<sup>th</sup>, 2024

**Keynote Speaker : Prof. (Dr) Volker Hessel; The University of Adelaide, Australia**

**Session Chair: Dr. Belgin SEVER ; Anadolu University Turkey**

### Zoom Meeting Link:

<https://us06web.zoom.us/j/89869315547?pwd=Zo3nFmWCvpBHdDGf26omsodzN50zwz.1>

**Meeting ID: 898 6931 5547 ; Passcode: 200965**

**Keynote Speaker 11:30 PM to 12:00 PM;**

S. No.	Presenter Name	Paper Title	SLOT	Timing (IST)
1.	Sonali Goyal	Efficient Desulfurization of Light Crude Oil Using MOF and its composite.	<b>Post-Lunch</b>	12:00-12:10 pm
2.	DuÅica JovanoviÄ	ZnO-based coatings in solar-enhanced removal of ciprofloxacin from the aqueous medium		12:10-12:20 pm
3.	Paolo Pellegrino	Antibacterial Properties of PMMA Nanograting and Nanopillar Arrays: An AFM Analysis		12:20-12:30 pm
4.	Szabolcs BognÄr	Advancing sustainable nanotechnology: Green synthesis of ZnO nanomaterials for photocatalytic degradation of organics in water		12:30-12:40 pm
5.	Subham Chakraborty	Measuring of Surface Roughness of Al-6061 Alloy by CNC Milling by using of Taguchi Method		12:40-12:50 pm
6.	Laura Maria Slavu	Bimetal nanoparticles based Cu@Au nanozyme as promising nanomaterials for enhanced sensitive lateral flow assay (LFAs)		12:50-01:00 pm
7.	Anu Radha Pathania	Comparative analysis of glimepiride interactions with bovine serum albumin and fibrinogen using fluorescence spectroscopy		01:00-01:10 pm
8.	Annalisa Bianco	Green synthesis of Chitosan Nanoparticles as Locked Nucleic Acid Delivery Systems		01:10-01:20 pm
9.	Batchu Ramanajneyulu	Transforming Treacherous Terrains: Enhancing Black Cotton Soil Stability with Calcium Lignosulfonate and Marble Dust		01:20-01:30 pm
10.	Sajal Rai	Investigations on melt flow index of orange peel powder reinforced thermoplastic composites for fdm filament fabrication		01:30-01:40 pm

# Advancing sustainable nanotechnology: Green synthesis of ZnO nanomaterials for photocatalytic degradation of organics in water

Szabolcs Bognár<sup>1\*</sup>, Dušica Jovanović<sup>1</sup>, Sanja Panić<sup>2</sup>, Vesna Despotović<sup>1</sup>, Nina Finčur<sup>1</sup>, and Daniela Šojić Merkulov<sup>1</sup>

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**Abstract.** The environmental pollution, especially pure water scarcity, is an eager problem in the modern society. Various organic pollutants (e.g. drugs, pesticides) are found in the aquatic environment, which cannot be removed by conventional water treatment techniques. Heterogeneous photocatalysis, one of the advanced oxidation processes, showed high efficiency in the removal of organics. This process employs nanomaterials as photocatalysts and renewable solar irradiation. The aim of this research was to develop a novel approach to the green synthesis of ZnO nanoparticles using banana peel (ZnO/BPE) and green tea extracts, under various synthesis settings. The novel ZnO nanomaterials were tested in the photocatalytic degradation of two critical organic pollutants: tembotrione (TEM), a herbicide, and 17 $\alpha$ -ethynilestradiol (EE2), an endocrine-disrupting compound, applying solar irradiation under different experimental conditions. Furthermore, the photocatalytic activity of pure banana peel extract was also investigated. The confirmed high photocatalytic activity of the newly synthesized nanomaterials makes them suitable for the removal of TEM and EE2 from aqueous environment, under solar irradiation. On the other hand, the pure banana peel extract exhibited better efficiency than the novel ZnO/BPE nanomaterial. The findings suggest that integrating plant extracts in nanotechnology can lead to sustainable, high-performance solutions for water treatment and pollution control.

**Acknowledgment.** This research was funded by the Science Fund of the Republic of Serbia (Grant No. 7747845, *In situ* pollutants removal from waters by sustainable green nanotechnologies-CleanNanoCatalyze) and by the Ministry of Science, Technological Development and Innovation of the Republic of Serbia (Grant Numbers 451-03-66/2024-03/200125 and 451-03-65/2024-03/200125).

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# Certificate of Oral Presentation

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This is to Certify that Mr./Ms. Szabolcs Bognair from University of Novi Sad Faculty of Sciences, Serbia  
has presented a paper entitled” Advancing sustainable nanotechnology: Green synthesis of ZnO nanomaterials for  
photocatalytic degradation of organics in water

at “EURO-ASIAN CONFERENCE ON SUSTAINABLE NANOTECHNOLOGY, ENVIRONMENT & ENERGY (SNEE-2024)” Organized by  
Research & Incubation Centre, Rayat Bahra University, Punjab, India in association with the National University of Singapore,  
University of Salento, Italy & University of Montpellier, France on 15 -16<sup>th</sup> October 2024.

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