

## 2<sup>nd</sup> TwiNSol-CECs Workshop

### Advanced Water Treatments in Emerging Contaminants Mitigation with Cutting-Edge Technologies

University of Novi Sad, Faculty of Technology Novi Sad, Serbia  
June 6-7, 2024

**Chair** – Prof. Zita Šereš

#### **Scientific Committee** (*in alphabetic order*)

Prof. Sandra Budžaki, Josip Juraj Strossmayer University of Osijek, Faculty of Food Technology Osijek, Croatia

Prof. Joao Crespo, NOVA University Lisbon, NOVA School of Science and Technology, Portugal

Dr. Marijana Dragosavac, Loughborough University, Chemical Engineering, UK

Prof. Nataša Đurišić Mladenović, University of Novi Sad, Faculty of Technology Novi Sad, Serbia

Dr. Marinella Farre, IIQAB-CSIC, Department of Environmental Chemistry, Spain

Prof. Ivana Ivančev Tumbas, University of Novi Sad, Faculty of Sciences, Department of Chemistry, Biochemistry and Environmental Protection, Serbia

Prof. Laszlo Zsuzsanna, University of Szeged, Faculty of Engineering, Department of Process Engineering, Hungary

Dr. Nikola Maravić, University of Novi Sad, Faculty of Technology Novi Sad, Serbia

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Prof. Biljana Pajin, University of Novi Sad, Faculty of Technology Novi Sad, Serbia

Prof. Marina Šćiban, University of Novi Sad, Faculty of Technology Novi Sad, Serbia

#### **Organizing Committee** (*in alphabetic order*)

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Dr. Maja Buljovčić, University of Novi Sad, Faculty of Technology Novi Sad, Serbia

Dr. Ivana Lončarević, University of Novi Sad, Faculty of Technology Novi Sad, Serbia

Dr. Dragana Lukić, University of Novi Sad, Faculty of Technology Novi Sad, Serbia

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Jelena Šurlan, MSc, University of Novi Sad, Faculty of Technology Novi Sad, Serbia

Dr. Vesna Vasić, University of Novi Sad, Faculty of Technology Novi Sad, Serbia

## Agenda

Thursday – 6 June 2024

### Morning session, Faculty of Technology Novi Sad, Blue Hall

- 9:00 – 10:00 Registration
- 10:00 – 10:15 Official opening, Biljana Pajin, Dean of the Faculty of Technology Novi Sad, and Zita Šereš, Chair of the Workshop

*Plenary lectures (30 min per lecture + 5 min for Q&A after each lecture):*

- 10:15 – 10:50 João G. Crespo, Sylwin Pawlowski, Svetlozar Velizarov – **Ion-Exchange Membrane Processes: Perspectives in Water Treatment and Desalination**
- 10:50 – 11:25 Olívia Salomé G. P. Soares – **Catalytic advanced oxidation processes for pollutants degradation**
- 11:25 – 11:55 *Coffee break*

*Invited lectures (15 min per lecture + 5 min for Q&A after each lecture):*

- 11:55 – 12:15 Sanja Panić, Mirjana Petronijević, Igor Antić, Jelena Živančev, Maja Buljovčić, Nataša Đurišić-Mladenović – **Heteroatom-doped pyrochar for efficient metal-free catalytic oxidation of contaminants of emerging concern**
- 12:15 – 12:35 Minja M. Bogunović, Ivana I. Ivančev-Tumbas – **Hybrid adsorption/membrane filtration in water treatment for the removal of organic micropollutants**
- 12:35 – 12:55 Nandor Nemestothy, Merve Visnyei, Veronika Kalauz-Simon, Peter Bakonyi – **Gaseous Byproducts in Wastewater Treatment: Challenges and Opportunities with Membrane Technology**
- 13:00 – 14:00 *Lunch*
- 14:00 – 14:30 *Poster session with Coffee*

### Afternoon session, Faculty of Technology Blue Hall

*Invited lectures (15 min per lecture + 5 min for Q&A after each lecture):*

- 14:30 – 14:50 Snežana Maletić, Jelena Beljin, Irina Jevrosimov, Tamara Apostolović, Srđan Rončević, Marijana Kragulj Isakovski – **The contribution of inoculated biochar to pesticide adsorption and biosorption**
- 14:50 – 15:10 Djordja V. Kerkez, Milena R. Bečelić-Tomin, Anita S. Leovac Mačerak, Dragana D. Tomašević Pilipović, Dejan Krčmar, Nataša S. Slijepčević, Vesna Z. Pešić – **Sludge application on land: Opportunities and challenge**

Oral presentations (10 min per lecture + 5 min for Q&A after each lecture):

- 15:10 – 15:25 Szabolcs Kertész, Imre Vajk Fazekas, Martin Trancsik, Aws N. Al-Tayawi, József Richárd Lennert, Sándor Beszédes, József Csanádi, Tamás Szabó, Cecilia Hodúr, Gábor Veréb, Zsuzsanna László – **Enhancing the efficiency of low-pressure membrane separations using 3d printed spacers**
- 15:25 – 15:40 Aws N. Al-Tayawi, Hajnalka Csott, Nikolett Sz. Gulyás, József Richárd Lennert, Zsuzsanna Horváth Hovorka, Zsuzsanna László, Cecilia Hodúr, Szabolcs Kertész – **Evaluation of flow dynamics utilizing integrated 3d printed turbulence promoters for mitigation of membrane fouling**
- 15:40 – 15:55 Jelena Molnar Jazić, Tajana Simetić, Marijana Kragulj Isakovski, Aleksandra Tubić, Jasmina Agbaba – **Advanced oxidation processes for natural organic matter and emerging contaminants abatement in water treatment**
- 15:55 – 16:10 Jasmina Nikić, Malcolm A. Watson, Maja Vujić, Jovana Pešić, Jovana Jokić–Govedarica, Srđan Rončević, Jasmina Agbaba – **Addressing arsenic contamination: a polymer-based nanocomposite for water treatment**

**Friday – 7 June 2024**

**Morning session, Faculty of Technology Blue Hall**

9:00 – 10:00 Registration

Plenary lectures (30 min per lecture + 5 min for Q&A after each lecture):

10:00 – 10:30 Maria B. Cristóvão, Jorge Bernardo, Andreia Bento-Silva, Maria R. Bronze, João G. Crespo, Vanessa J. Pereira – **Mitigating Anticancer Drug Pollution: Nanofiltration for Control of Emerging Contaminants in Wastewater Effluents**

Invited lectures (15 min per lecture + 5 min for Q&A after each lecture):

10:30 – 10:50 Nikola Maravić, Zita Šereš, Jelena Šurlan, Nataša Đurišić-Mladenović, Igor Antić, Jelena Živančev, Carla Brazinha, Claudia F. Galinha, João G. Crespo – **Removal of acetaminophen and clarithromycin from water samples using nanofiltration and reverse osmosis**

10:50 – 11:10 Vesna M. Vasić, Dragana V. Lukić, Marina B. Šćiban – **Sewage sludge biochar as a sorbent for contaminants of emerging concerns removal from water**

11:10 – 11:30 Gábor Veréb, Laura Fekete, Tímea Miklós, Kata Fejes, Renáta Kovács, Ákos F. Fazekas, Erika Nascimben Santos, Szabolcs Kertész, Sándor Beszédes, Cecilia Hodúr, Zoltán Jákói, Gábor Kovács, Zsolt Pap, Tamás Gyulavári, Klára Hernádi, Zsuzsanna László – **TiO<sub>2</sub>/CNT-modified pvdf composite membranes for enhanced membrane filtration of oily wastewaters**

11:30 – 12:00 Coffee break

- 12:00 – 12:20 Dragana, V. Lukić, Vesna, M. Vasić, Marina, B. Šćiban – **Multicomponent adsorption kinetics of micropollutants onto lignocellulosic biosorbents**
- 12:20 – 12:40 Nenad R. Grba – **Nano-geopolymer based remediation techniques for purification of different type of groundwater with high Mn, Fe and other metals/metalloids (As) content**
- Oral presentations (10 min per lecture + 5 min for Q&A after each lecture):*
- 12:40 – 12:55 Zoltán P. Jákói, Cecilia Hodúr, Sándor Beszedes – **Dielectric monitoring in wastewater-treatment and sludge utilization processes**
- 12:55 – 13:10 Maja Vujić, Vasiljević Sanja, Tajana Simetić, Jelena Molnar Jazić, Marijana Kragulj Isakovski, Jasmina Agbaba, Aleksandra Tubić – **Adsorption kinetics of organic pollutants on microplastic fibers in water**
- 13:10 – 14:10 *Lunch with coffee*
- Afternoon session, Faculty of Technology Blue Hall**
- Invited lectures (15 min per lecture + 5 min for Q&A after each lecture):*
- 14:10 – 14:30 Ferenc E. Kiss – **Lessons learnt from life cycle assessment of advanced wastewater treatment processes**
- 14:30 – 14:50 Igor Antić, Jelena Živančev, Maja Buljovčić, Dušan Rakić, Nataša Đurišić-Mladenović – **Role of a high-resolution mass spectrometry in investigating processes for removal of contaminants of emerging concern from water**
- Oral presentations (10 min per lecture + 5 min for Q&A after each lecture):*
- 14:50 – 15:05 Marija Šobić, Mirjana Petronijević, Sanja Panić, Igor Antić, Jelena Živančev, Milan Tomić, Nataša Đurišić-Mladenović – **Removal of micropollutants from water using hydrochar obtained with process water recirculation**
- 15:05 – 15:20 Arijit Nath, Geremew Geidare Kailo, Abraham Amankwaa, Gabriella Kiskó, András Koris – **Production of Bioactive (Antioxidant and Antibacterial) Peptides from Soybean Milk Proteins by an Enzymatic Membrane Reactor**
- 15:20 – 15:40 Concluding remarks

**Poster presentations (set-up: June 6, 11:25 – 11:55, dismantling: June 7, 13:10 – 15:40)**

- P1** APPLICATION OF PHYSICALLY ACTIVATED BIOCHAR FOR THE REMOVAL OF PHENOL FROM WATER  
Aleksandra Adamović, Mirjana Petronijević, Saša Savić, Sanja Panić, Sanja Petrović, Nataša Đurišić-Mladenović
- P2** POTENTIAL OF HYDROCHAR AS BIOSORBENT FOR HEAVY METAL IONS REMOVAL FROM WATER  
Marco Barbanera, Alessandro Cardarelli, Vesna M. Vasić, Dragana V. Lukić
- P3** INFLUENCE OF SELECTED CARRIER MATERIALS ON NATURAL COAGULANT PRODUCTION YIELD  
Sanja Cojbasic, Maja Turk Sekulic, Jelena Prodanovic
- P4** APPLICATION OF LEDs IN UV/CHLORINE AOPs FOR THE TREATMENT OF AQUEOUS SOLUTIONS OF POPs SUCH AS PHARMACEUTICALS  
Anett Čović, Luca Farkas, Constance Csaplár, Teodóra Dragić, Tünde Alapi
- P5** PREDICTION THE PHOTOCATALYTIC DEGRADATION RATE OF DICLOFENAC BY ARTIFICIAL NEURAL NETWORKS  
S. Roy, L. Das Samanta
- P6** ACTIVATION OF PEROXYMONOSULFATE WITH BIOCHAR - ADSORPTION AND ELIMINATION OF TRIMETHOPRIM ANTIBIOTIC FROM WATERS  
Dinesh Chandola, Erik Sinkovics, Zsuzsanna László, Tünde Alapi
- P7** COMBINED ION EXCHANGE AND MICROFILTRATION  
Marijana Dragosavac
- P8** LIGNIN DERIVED FROM CYNARA CARDUNCULUS AS AN EFFICIENT BIOSORBENT FOR CHROMIUM(VI) ION REMOVAL FROM WATER  
Jorge Gominho, Ana Lourenço, Ricardo A. Costa, Duarte M. Neiva, Vesna M. Vasić, Dragana V. Lukić, Marina B. Šćiban
- P9** JUTE FABRIC WASTE AS A PROMISING ADSORBENT FOR HEAVY METAL IONS AND ORGANIC DYES: A COMPREHENSIVE REVIEW  
Aleksandra M. Ivanovska
- P10** REMOVAL OF PHENOL FROM WATER BY USING FREE AND IMMOBILIZED HORSE RADISH PEROXIDASE CATALYZED PROCESS  
Milan P. Nikolić, Slobodanka Stanojević-Nikolić
- P11** PRODUCTION OF ANTIOXIDANT AND ANTIBACTERIAL PEPTIDES FROM SOYBEAN MEAL BY AN ENZYMATIC MEMBRANE REACTOR  
Arijit Nath, Geremew Geidare Kailo, Abraham Amankwaa, Gabriella Kiskó, András Koris
- P12** APPLICATION OF LIGNOCELLULOSIC BIOSORBENT FOR SUGAR JUICE PURIFICATION IN FIXED-BED COLUMN  
Lidija E. Perović, Jelena A. Miljanić, Julija Šupljika, Ivan Zdjelarević, Nikola R. Maravić, Zita I. Šereš
- P13** REMOVAL OF CONTAMINANTS OF EMERGING CONCERN FROM WATER USING UV-H<sub>2</sub>O<sub>2</sub> ADVANCED OXIDATION PROCESS  
Mirjana Petronijević, Sanja Panić, Jelena Živančev, Igor Antić, Dušan Rakić, Nataša Đurišić-Mladenović

- P14** Cu<sup>2+</sup> ADSORPTION FROM AQUEOUS SOLUTION BY WASTE EGGSHELL POWDER  
Sanja Petrović, Saša Savić, Mirjana Petronijević, Bratislav Todorović, Staniša Stojiljković
- P15** PHENOL REMOVAL FROM WATER SOLUTION USING PEROXIDASE EXTRACTED FROM POTATO PEEL  
Saša Savić, Sanja Petrović, Mirjana Petronijević
- P16** THE MICROPLASTIC IS VISIBLE BY FLUORESCENCE UNDER STEREOMICROSCOPE  
Živa Kolenc, Kaja Adamek, Sonja Smole Možina, Anja Klančnik
- P17** THE ADVANTAGE OF LPM LAMPS EMITTING AT 185 NM - A SIMPLE SOLUTION TO ENHANCE THE EFFICIENCY OF PHOTOCHEMICAL WATER POST-TREATMENT PROCESS FOR ELIMINATING NON-BIODEGRADABLE ORGANIC POLLUTANTS  
Tünde Alapi, Anett Čović, Luca Farkas, Réka Bíró, Gyöngyi Orosz
- P18** INACTIVE BIOMASS OF THE FUNGUS *Ganoderma applanatum* AND ITS BIOSORPTIVE POTENTIAL FOR REMOVING MALACHITE GREEN FROM WASTEWATER  
Natalija Velić, Marija Stjepanović, Jelena Vukoje, Janez Gorenšek, Sandra Budžaki, Marta Ostojčić
- P19** EFFECT OF SODIUM CHLORIDE ON THE REMOVAL OF PHARMACEUTICALLY ACTIVE COMPOUNDS FROM WATER BY A REVERSE OSMOSIS MEMBRANE  
Jelena Šurlan, Zita Šereš, Nikola Maravić, Nataša Đurišić Mladenović, Igor Antić, Jelena Živančev, Carla Brazinha, João G. Crespo
- P20** PRELIMINARY PRODUCTION COST ESTIMATION FOR BIOSORBENTS DERIVED FROM PEACH STONES  
Danijela Z. Stefanović, Marija R. Miladinović, Biljana S. Đorđević, Milan D. Kostić, Olivera S. Stamenković
- P21** ADSORPTION EFFICIENCIES OF INDIAN NEEM LEAVES FOR REMOVAL OF CONGO-RED DYE FROM AQUEOUS SOLUTION FOR SUSTAINABLE ENVIRONMENT  
Radharani Das, Ishita Sinha, Soumyajit Maity, Subhjit Ash
- P22** ADSORPTIVE REMOVAL OF Cr (VI) FROM SYNTHETIC WASTES USING AGRICULTURAL WASTES: A GREEN APPROACH  
Radharani Das, G. Roymahapatra, Ishita Sinha, Soumyajit Maity, Subhjit Ash

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or EU executive agency. Neither the European Union nor the granting authority can be held responsible for them.