ICWRR2024
International Conference on Wider-Uptake of Water Resource Recovery from Wastewater Treatment

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IWA-RMTC 2024
7th IWA – Regional Membrane Technology Conference

PROGRAMME
18-21 JUNE | PALERMO - ITALY
This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 869283
Welcome words – ICWRR2024

On behalf of the organizing committee, we are very pleased to welcome you to Palermo (Italy) for the International Conference on Wider-Uptake of Water Resource Recovery from Wastewater Treatment (ICWRR2024). The major aim is to create a forum for promoting the discussion amongst scientists, professionals and academia in different areas of the broader theme of water resource recovery from water treatment. The event is the final conference of the 4-year EU project: Achieving Wider-Uptake of water smart solutions – Wider-Uptake. Eminent keynote wastewater treatment and modelling experts will foster multidisciplinary collaboration and dialogue.

The conference has also an intensive social program. This structure was decided with the final idea to foster networking and enjoy the conference favoring a stimulating and pleasant atmosphere. We do hope that your participation in the conference will give you an opportunity to explore the rest of Italy, to savor its diverse and rich mixture of ethnic traditions, culture, cuisine and religious sites.

We realize that all of you made quite an effort to come, contribute and participate and we feel honored. The success of the meeting is now in your hands. Very welcome to Palermo’s colourful and vibrant city, and wishing you a successful conference.

Welcome words – IWA-RMTC 2024

On behalf of the IWA Membrane Technology Specialist Group, we are delighted to welcome you to Palermo (Italy) for the 7th IWA Regional Membrane Technology Conference, IWA-RMTC 2024.

IWA-RMTC has been running since 2008, following Moscow, Russia (2008), Istanbul, Turkey (2010), Buenos Aires, Argentina (2012), Ho Chi Minh City, Vietnam (2014), Kunming City, China (2016), and Vadodara, India (2018). Palermo will be the meeting point for the 7th IWA-RMTC edition in 2024.

A total of 350 extended abstracts have been submitted. Each of these was assessed by at least three members of the scientific committee. Overall, 300 extended abstracts have been selected for presentation at the conference, with over 250 oral presentations and around 50 posters.

This also involved a detailed review with suggestions for the improvement of the abstracts that may be considered for post-event publication in selected journals. This strict selection was guided by the desire to maintain an high quality of the presented papers. The review process involved nearly 100 individuals who shared their expertise and time, thus providing an invaluable contribution to the scientific and technical excellence papers.

Welcome to Palermo.
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<td>18.00</td>
<td>Royal Palace visit, Ice-breaker &amp; Registration</td>
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# Scientific Committee – ICWRR2024

Giorgio Mannina, Italy – Conference Chair

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# Scientific Committee – IWA-RMTC 2024

Giorgio Mannina, Italy – Conference Chair

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Location of the event

ICWRR2024 and IWA-RMTC 2024 will be held in a peaceful and amazing location of one of the most attractive cities of Italy – Palermo. Palermo is the capital of the island region of Sicily. It is located in the northwestern part of the island of Sicily, right by the Gulf of Palermo in the Tyrrhenian Sea. Throughout the history, Palermo has always been a place, where different points of view have been presented and discussed in search for balanced and sustainable solutions. Powered by the sea, in the summer, Palermo is an exciting venue. Palermo was declared “the most beautifully situated town in the world” by Oscar Wilde – rightly so, in many peoples’ eyes. The conference will be held in one of the corners of the historical city center, which is among the largest in Europe. Within a walking distance you will find the most famous cultural and architectural attractions.

Conference venue

The ICWRR2024 and IWA-RMTC 2024 sessions will be held at the modern Conference building located within the University of Palermo’s Campus. With its 19 rooms, the conference building is an ideal location to host parallel sessions during ICWRR2024 and IWA-RMTC 2024. The opening session will be held at the Aula Magna of the Engineering Department, located within the University of Palermo’s Campus. The Campus is very close to the city center and is easy to be reached; the main entrance to Campus is just a few meters from the underground station and is also reached by the urban bus service. The University of Palermo’s Campus is located within the Park d’Orléans.

The park was built in the early nineteenth century as a reserve d’Orléans Palace, which currently houses the Presidency of the Sicilian Region. It is also an experimental catchment with measuring (quality and quantity) of an area of 10 ha stations. Further, in 2022 the first Water Resource Recovery Facility was built within the Campus recovering treated water, bioplastics and nutrients from slow release fertilizers within the EU project Wider Uptake.
Social Programme

Tuesday 18 June – Royal Palace

The Palazzo dei Normanni, the Royal Palace of Palermo, was the seat of the Kings of Sicily during the Norman domination. The building is the oldest royal residence in Europe, the home of the rulers of the Kingdom of Sicily and imperial seat with Frederick II and Conrad IV the Svevian. The palace stands in what is the highest point of the ancient center of the city, just above the first Punic settlements, whose remains can still be found in the basement. The palace is today the seat of the Sicilian Parliament and Sicilian Regional Assembly. The Sicilian Parliament is the oldest in the world. Indeed, the first meeting (assise) was convened by the King Ruggero in 1130.

Thursday 20 June – Monreale Cathedral

Monreale Cathedral (Italian: Cattedrale di Santa Maria Nuova di Monreale; Duomo di Monreale) is a Catholic church in Monreale, Metropolitan City of Palermo, Sicily, southern Italy. One of the greatest existent examples of Norman architecture, it was begun in 1174 by William II of Sicily. In 1182 the church, dedicated to the Nativity of the Virgin Mary, was, by a bull of Pope Lucius III, elevated to the rank of a metropolitan cathedral as the seat of the diocese of Monreale, which was elevated to the Archdiocese of Monreale in 1183. Since 2015 it has been part of the Arab-Norman Palermo and the Cathedral Churches of Cefalù and Monreale UNESCO World Heritage Site.
Social Programme

Friday 21 June – Teatro Massimo

The Teatro Massimo is not only the largest theatre in Italy but also one of the largest in Europe. This imposing structure with its neoclassical exterior stands on the site of a church and a monastery, demolished at the end of the 1800’s. The façade resembles a classic temple. A regal flight of steps leads up to a gabled vestibule supported by six Corinthian tuff columns on a podium with a monumental staircase flanked by two bronze lions ridden by the allegorical representations of Melody and Opera. Golden stuccoes, wooden decorations, velvet and glass: the horseshoe-shaped auditorium hosts up to up to 1300 people in the stalls, five floors of boxes and a gallery.
Keynote Speakers

Prof. Eveline Volcke, Ghent University – Belgium
**Keynote: N₂O modelling from wastewater treatment: perspective and future challenges**
Eveline Volcke is professor at Ghent University, Belgium. She is the founder and head of the ‘Biosystems Control (BioCo)’ research group, focusing on efficient and sustainable process design and control. Her research aims at process optimization through physical-based modelling and simulation, data treatment techniques and experimental studies. She is an IWA Distinguished Fellow and has served in the IWA World Water Congress Programme Committee since 2015.

Prof. Eberhard Morgenroth, Eawag – Switzerland
**Keynote: Water reuse in the frame of circular economy**
Eberhard Morgenroth is Professor for Process Engineering in Urban Water Management with appointments at ETH Zürich and at Eawag. At Eawag he is head of the process engineering department. His research interests include wastewater treatment, membrane bioreactors for water reuse, control of biofilms, biofilm reactors, biological drinking water treatment, decentralized wastewater treatment, and energy recovery from wastewater and organic residuals. He is Editor in Chief of Water Research Journal.

Prof. Zhiguo Yuan, City University of Hong Kong – Hong Kong
**Keynote: Boosting the transition to water resource recovery with a plant-wide circular approach**
Prof. Zhiguo Yuan is Chair Professor of Urban Water Management at School of Energy and Environment, City University of Hong Kong. He was the Director of the Australian Centre for Water and Environmental Biotechnology at The University of Queensland. He was named as one of Engineers Australia’s Top 100 Most Influential Engineers for 2015, and appointed a Member of the Order of Australia in 2019. He is Editor in Chief of Water Research X Journal.

Prof. Ana Soares, Cranfield University - UK
**Keynote: Advances in nutrient recovery from wastewater**
Ana Soares is Professor in Biotechnology Engineering at Cranfield University in the UK. She explores the underpinning science required to develop and manage bioreactors employing new biological organisms, cultures or pathways in order to develop or optimise technologies and deliver the circular economy. Her scientific findings have resulted in leading-edge processes and technological innovations that contribute to sustainable solutions for effluent treatment.

Prof. How Yong Ng – Beijing Normal University - China
**Keynote: Advances in MBR for Resource Recovery and Energy Reduction**
Ng How Yong is Provost’s Chair Professor in the Department of Civil and Environmental Engineering and Director of NUS Environmental Research Institute and the Director of the Sembcorp-NUS Corporate Laboratory. He has over 20 years of experience in biological wastewater treatment and membrane processes for water reuse and seawater desalination, and has served as a consultant on water reuse as well as seawater desalination in Singapore, China, Japan and the USA. He is Chair of the Management Committee of the IWA Specialist Group on Membrane technology.
Keynote Speakers

Prof. Yongmei Li, Tongji University – China
Keynote: Frontiers in Phosphorus Removal and Recovery in Circular Economy Perspective
Yongmei Li is full professor and the head of the Department of Environmental Engineering at Tongji University. Her research interests focus on removal and recovery of nutrients from wastewater, fate and attenuation of emerging micropollutants in wastewater treatment plants. She serves as the associate editor of Chemosphere and she is a member of the management committee of the IWA nutrient removal and recovery specialist group.

Prof. Menachem Elimelech, Yale University – USA
Keynote: The role of membranes in resource recovery and the transition to circular economy
Menachem Elimelech is currently Sterling Professor in Chemical and Environmental Engineering at Yale University, USA. Professor Elimelech’s research is in the general area of the water-energy nexus. Specifically, the research in his group involves: (i) membrane-based processes for energy-efficient desalination and wastewater reuse, (ii) advanced materials for next-generation environmental separation and water decontamination technologies, and (iii) environmental applications of nanomaterials.

Prof. Damià Barceló, IDAEA-CSIC – Spain
Keynote: Microplastics and other emerging contaminants in the wastewater and sewage sludge: perspective and frontiers
Damià Barceló is Professor at the Institute of Environmental Assessment and Water Studies IDAEA-CSIC (Barcelona) and Director of the Catalan Institute of Water Research (ICRA). His scientific focus is on the Fate and Risk of Emerging Pollutants and on the Water Pollution Control and Protection under Scarcity. In 2007 he was awarded the King Jaime I Prize for the Protection of Nature from Generalitat of Valencia for his outstanding scientific work. He is co-editor-in-Chief of Science of the Total Environment (Elsevier) and other relevant Journals.

Prof. Xia Huang, Tsinghua University – China
Keynote: Challenges toward carbon neutrality of anaerobic MBR for municipal wastewater treatment
Xia Huang is professor in the School of Environment at Tsinghua University as well as director of the State Key Joint Laboratory of Environment Simulation and Pollution Control. She was awarded by the National Science Fund for Distinguished Young Scholars and the Yangtse River Scholar award. In 2009, Dr. Huang was the recipient of top10 best papers award of the journal: Environmental Science and Technology.

Prof. Zhiwei Wang, Tongji University - China
Keynote: Integration of Artificial Intelligence into Membrane-based Water Treatment: From Mechanisms to Processes
Zhiwei Wang is a Professor and the Dean of School of Environmental Science and Engineering, Tongji University, China. He has published over 200 peer-reviewed papers in journals such as Nature Water, Science Advances, Environmental Science & Technology, Water Research, etc., with total citations of more than 16,000, and authorized over 50 invention patents. He is an IWA Fellow, and secretary of Management Committee of IWA Specialist Group on Membrane Technology.
9:00-09:45 Open Ceremony – Plenary Hall – Engineering Department Bld. 7, Viale delle Scienze, Palermo – Italy

9:00-9:30 – Greetings from the Authorities

Prof. Massimo Midiri – Magnificent Rector, University of Palermo
Prof. Antonino Valenza – Head of the Engineering Department, University of Palermo
Dott. Fabio Fava* – European Commission
On.le Roberto Lagalla* – Mayor of Palermo
On.le Renato Schifani* – President of Sicily
On.le Antonio Tajani* – Minister of Foreign Affairs and International Cooperation
On.le Giuseppe Valditara* – Minister of Education and Merit
* To be confirmed

9:30-9:45 – Welcome address

Prof. How Yong Ng, Beijing Normal University, China & National University of Singapore, Singapore - Chair of 7th IWA RMTC 2024
Herman Helness – Sintef, Norway – Wider – Uptake Coordinator
Prof. Giorgio Mannina, University of Palermo, Italy – Chair of ICWRR 2024 & 7th IWA RMTC 2024

09:45-10:30 Keynote – Plenary Hall – Engineering Department Bld. 7, Viale delle Scienze, Palermo – Italy

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<th>Presenter</th>
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<tr>
<td>09:45-10:15</td>
<td>Zhiguo Yuan</td>
<td>City University of Hong Kong – Hong Kong</td>
<td>Boosting the transition to water resource recovery with a plant-wide circular approach</td>
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<tr>
<td>10:15-10:30</td>
<td>Discussion</td>
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### A1 – Room 9

**Session name**: Novel resource recovery processes  
**Chairman**: Matias Vanotti  
**Affiliation**: USA

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<tr>
<td>11:00-11:15</td>
<td>Zhen He</td>
<td>Washington University in St. Louis – USA</td>
<td>Electrochemical phosphorus recovery from sewage sludge with dewaterability improvement</td>
<td>Zixuan Wang and Zhen He</td>
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<tr>
<td>11:15-11:30</td>
<td>Fengyi Zhu</td>
<td>KTH Royal Institute of Technology – Sweden</td>
<td>An Innovative Approach for Rare-earth Elements: Implementation of Enhanced Phosphorus Recovery for Phosphorus Mining from Eutrophic Sediments</td>
<td>Fengyi Zhu, Elena Radaelli, Giorgia Palladino, Silvia Turroni and Zeynep Cetecioglu</td>
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<tr>
<td>11.30-11:45</td>
<td>Emma Company</td>
<td>Laboratory of Chemical and Environmental Engineering (LEQUiA) – Spain</td>
<td>Electrochemical pH Control to Recover P and K From Swine Manure As K-Struvite</td>
<td>Emma Company, Emma Dessi, Albert Magri and Jesús Colprim</td>
</tr>
<tr>
<td>11:45-12:00</td>
<td>Kripa Singh</td>
<td>University of New Brunswick – Canada</td>
<td>Phosphorus Recovery from Anaerobic Effluent using Electrochemical Struvite Precipitation</td>
<td>Gyana Bhoi, Kripa Singh and Dennis Connor</td>
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### B1 – Room 10

**Session name**: Enhancing membrane fouling control  
**Chairman**: Fangang Meng  
**Affiliation**: China

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<tbody>
<tr>
<td>11:00-11:15</td>
<td>Yasmina K. Alseksek</td>
<td>Khalifa University – Arab Emirates</td>
<td>Polyethersulfone membrane nanomodified with MoS2-CeO2 for the effective separation of oil-in-water emulsions</td>
<td>Yasmina K. Alseksek, Thanigaivelan Arumugham, Mohamed Abu Hajja, Fawzi Banat and Shadi W. Hasan</td>
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<tr>
<td>11:15-11:30</td>
<td>Ryoya Taniguchi</td>
<td>Chuo University – Japan</td>
<td>Modification of commercial coagulant into fouling resistant coagulant by electrodialysis and BaSO4 co-precipitation</td>
<td>Ryoya Taniguchi, Hiroshi Yamamura, Qing Ding, Naoki Murata and Nobuhiro Aoki</td>
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<tr>
<td>11:30-11:45</td>
<td>Hyun-Suk Oh</td>
<td>Seoul National University of Science and Technology – South Korea</td>
<td>Enhancing Biofouling Control in Membrane Bioreactors with a Circulating Quorum Quenching Vessel</td>
<td>Hyeok Kim, Kibaek Lee and Hyun-Suk Oh</td>
</tr>
<tr>
<td>11:45-12:00</td>
<td>Ruobin Dai</td>
<td>Tongji University – China</td>
<td>Recognizing-cleaning-downcycling of Si-Al fouled RO membrane in a full-scale zero liquid discharge system</td>
<td>Ruobin Dai, Hailan Wang and Zhiwei Wang</td>
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### Pharmaceuticals removal from wastewater

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<tr>
<td>11:00-11:15</td>
<td>Elisa Girometti</td>
<td>University of Bologna – Italy</td>
<td>Development of an Adsorption Process for the Removal of Pharmaceuticals from Wastewater Treatment Plant Effluents by means of MolecularlyImprinted Polymers and Commercial Adsorbents</td>
<td>Elisa Girometti, Carla Maggetti, Dario Frascari, Davide Pinelli, Laura Sisti and Eleitra Savigni</td>
</tr>
<tr>
<td>11:15-11:30</td>
<td>Qingxian Su</td>
<td>Beijing Normal University at Zhuhai – China</td>
<td>Abiotic transformations of sulfamethoxazole by reactive nitrogen during wastewater treatment: Kinetics, mechanisms and pH effects</td>
<td>Qingxian Su, Shujuan Huang, Hui Zhang and How Yong Ng</td>
</tr>
<tr>
<td>11:45-12:00</td>
<td>Maria Teresa Moreira</td>
<td>CRETUS Universidad de Santiago de Compostela – Spain</td>
<td>Improving the performance of enzymatic antibiotic removal in continuous membrane reactors</td>
<td>Sabrina Rose de Boer and Maria Teresa Moreira</td>
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### Modelling towards wastewater treatment optimization

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<tr>
<td>11:00-11:15</td>
<td>Nitikesh Prakash</td>
<td>Indian Institute of Technology, Madras – India</td>
<td>Mathematical Modelling of CP and Scaling in Roto-dynamic RO System at Seawater Salinity During Laminar and Turbulent Cross Flow</td>
<td>Nitikesh Prakash, Abhijit Chaudhuri and Shyama Prasad Das</td>
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<td>11:15-11:30</td>
<td>Carla Vázquez</td>
<td>ACCIONA – Spain</td>
<td>Computational Fluid Dynamics (CFD) modelling of a full-scale oxidation ditch: suitable mesh selection method and hydrodynamic performance analysis</td>
<td>Carla Vázquez, Maria del Mar Micó and Jesús Colprim</td>
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<td>11:30-11:45</td>
<td>Paula Carrera</td>
<td>Ghent University – Belgium</td>
<td>Next-generation continuous-flow SBR technology for municipal wastewater treatment</td>
<td>Paula Carrera, Jingxing Ma, Michel Caluwé, Stijn Wyffels and Eveline I.P. Volcke</td>
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<tr>
<td>11:45-12:00</td>
<td>Sina Borzooei</td>
<td>IVL Swedish Environmental Research Institute – Sweden</td>
<td>Model-Aided Transition from Lab to Full-Scale VFAs Recovery for Enhanced Nitrogen Removal in a WWTP</td>
<td>Sina Borzooei, Giuseppe Campo, Barbara Ruffino, Alberto Cerutti and Mariachiara Zanetti</td>
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### A2 – Room 9

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<tr>
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<tr>
<td>12:25-12:40</td>
<td>Mengqi Cheng</td>
<td>Universitat Autònoma de Barcelona – Spain</td>
<td>Assessing The Opportunities of P-recovery in a S2EBPR Process Using Mass Balances</td>
<td>Mengqi Cheng, Albert Guisasola and Juan Antonio Baeza</td>
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<td>12:40-12:55</td>
<td>Cristian Barca</td>
<td>Aix-Marseille University, Laboratory M2P2 – France</td>
<td>Phosphorus Recovery From Sewage Sludge Digestate And Pig Manure By Hydrothermal Treatments</td>
<td>Antonello Tangredi, Carolina Ochoa, Olivier Boutin, Jean-Henry Ferrasse and Cristian Barca</td>
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<td>12:55-13:10</td>
<td>Dafne Crutchik</td>
<td>Universidad Adolfo Ibáñez – Chile</td>
<td>How to enhance phosphorus recovery from urine as struvite during its storage?</td>
<td>Nicolás Hernández-Alcayaga and Dafne Crutchik</td>
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### B2 – Room 10

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<tr>
<td>12:10-12:25</td>
<td>Katsuki Kimura</td>
<td>Hokkaido University – Japan</td>
<td>Efficient control of fouling in high-rate membrane bioreactors (HR-MBRs) for carbon recovery from municipal wastewater</td>
<td>Katsuki Kimura, Hitoshi Makizuka, Michael Rocco, Kazushi Hirama and Akira Hafuka</td>
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<td>12:25-12:40</td>
<td>Yizhe Lai</td>
<td>University of Chinese Academy of Sciences – China</td>
<td>Monitoring and warning of membrane fouling based on machine learning of spectral fingerprints</td>
<td>Yizhe Lai, Kang Xiao, Yichen Tian and Yirong Xu</td>
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<td>12:40-12:55</td>
<td>Chengxin Niu</td>
<td>Tongji University – China</td>
<td>Deep exploration on the inhibition of membrane fouling by an electrochemical anaerobic membrane bioreactor: Insights from biomass properties</td>
<td>Chengxin Niu, Wei Shi and Zhiwei Wang</td>
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### C2 – Room 11  
**Session name:** Advances in wastewater treatment  
**Chairman:** Siqing Xia  
**Affiliation:** AGH UST – Poland

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<tr>
<td>12:10-12:25</td>
<td>Maciej Sobczyk</td>
<td>Efficient Uranium Uptake by the Eco-designed Cocamidopropyl Betaine-Decorated Na-P1 Organozeolite - Elucidation Through Batch, Laboratory, and Synchrotron Spectroscopies</td>
<td>Maciej Sobczyk, Andre Rossberg, Chau Nguyen Dinh, Mateusz Marzec, Anna Cwanek, Edyta Łokas and Tomasz Bajda</td>
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<tr>
<td>12:25-12:40</td>
<td>Mateusz Skalny</td>
<td>Immobilization of exDNA and phosphorous using Ca(OH)2@iron oxide magnetic composite derived from steelmaking dust</td>
<td>Mateusz Skalny, Jakub Czeremuga, Marta Gajewska and Tomasz Bajda</td>
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<td>12:40-12:55</td>
<td>Amanda Larasati</td>
<td>Synthesis and recovery of biogenic manganese oxides (MnOx) from biological activated carbon (BAC) biofilms to remove organic micropollutants</td>
<td>Amanda Larasati and Maria Cristina Gagliano</td>
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### D2 – Room 12  
**Session name:** IWA MBR Task Group session  
**Chairman:** Eveline Volcke  
**Affiliation:** ENSIACET – France

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<tr>
<td>12:10-12:25</td>
<td>Marion Alliet</td>
<td>Optimization of MBRs through integrated modelling</td>
<td>Giorgio Mannina, Marion Alliet, Christoph Brepols, Joachim Comas, Jérôme Harmand, Marc Heran, Angel Robles, Ignasi Rodriguez-Roda, Maria Ruano and Ilse Smets</td>
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<tr>
<td>12:40-12:55</td>
<td>Valeria Sandoval García</td>
<td>Classifying membrane fouling for standardised resistance-in-series-based filtration process modelling in MBR technology</td>
<td>Valeria Sandoval-García, Marion Alliet, Christoph Brepols, Joaquim Comas, Jerome Harmand, Marc Heran, Ignasi Rodriguez-Roda, Maria Victoria Ruano, Ilse Smets, Giorgio Mannina and Ángel Robles</td>
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<tr>
<td>12:55-13:10</td>
<td>Mathilde Lepage</td>
<td>Optimisation of a Large Wastewater Treatment Plant: Plant-wide Modelling to Anticipate Major Modifications</td>
<td>Sylvie Gillot, Mathilde Lepage, Perrine Devos and Sébastien Riello</td>
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### 14:00-15:30 Keynote – Plenary Hall – Engineering Department Bld. 7, Viale delle Scienze, Palermo – Italy

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<tr>
<td>14:00-14:30</td>
<td>Damià Barceló</td>
<td>IDAEA-CSIC – Spain</td>
<td>Microplastics and other emerging contaminants in the wastewater and sewage sludge: perspective and frontiers</td>
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<td>14:30-14:45</td>
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<td>Discussion</td>
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<tr>
<td>14:45-15:15</td>
<td>Eveline Volcke</td>
<td>Ghent University – Belgium</td>
<td>N(_2)O modelling from wastewater treatment: perspective and future challenges</td>
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<td>15:15-15:30</td>
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<td>Discussion</td>
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### A3 – Room 9  Elements recovery from waste

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<tr>
<td>16:00-16:15</td>
<td>Chi-Wang Li</td>
<td>Tamkang University – Taiwan</td>
<td>Enhancing Fluoride Recovery from Wastewater through Cryolite Crystallization and Al(OH)(_3) Facilitated Adsorption: An Economically and Environmentally Viable Approach</td>
<td>Chi-Wang Li, Sabine Jessica Ouedraogo and Vincenzo Naddeo</td>
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<td>16:15-16:30</td>
<td>Matias Vanotti</td>
<td>United States Department of Agriculture (USDA) – USA</td>
<td>Quality of phosphates recovered from manure using various acidification processes</td>
<td>Matias Vanotti and Ariel Szogi</td>
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<td>16:45-17:00</td>
<td>Liad Weisz</td>
<td>TU Wien – Austria</td>
<td>Electrodiagnosis as an ammonium reuse process for covering the nitrogen demand of an industrial WWTP</td>
<td>Liad Weisz, Daniela Reif, Sascha Weilguni, Jörg Krampe and Norbert Kreuzinger</td>
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### B3 – Room 10  Advances in membrane fouling control

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<tr>
<td>16:00-16:15</td>
<td>Yousef Elhamarnah</td>
<td>Qatar University – Qatar</td>
<td>Advanced Ultrafiltration Membrane Analysis: Bench-Scale and Pilot-Scale Comparative Study of Stormwater, Dye, and Protein Fouling in Commercial and DES-Modified Systems</td>
<td>Yousef Elhamarnah and Hazim Qiblawey</td>
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<td>16:15-16:30</td>
<td>Seonki Lee</td>
<td>Korea Maritime &amp; Ocean University – South Korea</td>
<td>Biofouling control by facilitating metazoan activity in gravity-driven membrane (GDM) reactor for wastewater treatment</td>
<td>Jaewoong Jeong, Heewon Byeon and Seonki Lee</td>
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<td>16:30-16:45</td>
<td>Long D. Nghiem</td>
<td>University of Technology Sydney – Australia</td>
<td>Membrane fouling mitigation by photocatalysis and photo-electro catalysis</td>
<td>Long D. Nghiem, Amar K. Salih, Lisa Aditya, Cuong Ton-That, Xiaolei Zhang and Qiang Liu</td>
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<tr>
<td>16:45-17:00</td>
<td>Weichen Lin</td>
<td>Tsinghua university – China</td>
<td>Enhanced Resistance to Membrane Fouling Stimulated by Microstructured Feed Spacers</td>
<td>Weichen Lin, Han Wang, Haojie Ding, Xiao-Mao Wang and Xia Huang</td>
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<td>C3 – Room 11</td>
<td>Session name</td>
<td>Wastewater treatment optimization</td>
<td>Chairman: Dominika Sobotka</td>
<td>Poland</td>
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<td>16:00-16:15</td>
<td>Fernando Delgado</td>
<td>RISE Research Institutes of Sweden – Sweden</td>
<td>Pulp Wastewater Treatment using Anaerobic Moving Bed Biofilm Reactors: a case-study</td>
<td>Sara Bard, Susanne Jacobsson, Leticia Pizzul, Emilie Haglund, Anders Andersson, Fernando Morgan-Sagastume and Fernando Delgado</td>
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<td>André do Vale Borges</td>
<td>Universidade de São Paulo (USP) – Brazil</td>
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<td>André do Vale Borges, Lucas Tadeu Fuess, Paula Yumi Takeda, Renan Coghi Rogeri, and Marcia Helena Rissato Zamariolli Damianovic</td>
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<td>16:30-16:45</td>
<td>Midhun Joy</td>
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<td>Investigation of carbon dioxide for scale control in reverse osmosis systems</td>
<td>Midhun Joy and Roel Boussemaere</td>
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<td>Politecnico di Torino – Italy</td>
<td>Assessing Actions to Enhance the Biological Treatment Process in a Liquid Waste Treatment Plant</td>
<td>Giuseppe Campo, Sina Borzoei, Alberto Cerutti, Barbara Ruffino and Mariachiara Zanetti</td>
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<th>Chairman: Zhiwei Wang</th>
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<td>Mei An</td>
<td>Ghent University – Belgium</td>
<td>In-situ Reverse Osmosis Membrane Surface Modification with Novel Polymers: Rejection of Small Neutral Organic Micropollutant</td>
<td>Mei An, Leonardo Gutierrez, Arnout D’Haese, Lianshual Tan, Chuanlong Ma, Karen Leus, Anton Nikiforov,Nathalie De Geyter, Rino Morent and Emile Cornelissen</td>
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<td>17:10-17:13</td>
<td>Laura Ruiz Cosgaya</td>
<td>Universidad Politécnica de Valencia – Spain</td>
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<td>University of Bologna – Italy</td>
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<td>Carla Maggetti, Dario Frascati, Davide Pinelli, Vittorio Di Federico, Valentina Medri, Elettra Papa, Elena Landi, Tommaso Tabanelli and Fabrizio Cavani</td>
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<td>Maria Teresa Tavares</td>
<td>CEB-Uminho – Portugal</td>
<td>Tailored Recovery of Critical Elements from Wastewater towards New Catalytic Applications with Machine Learning Tools</td>
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<td>Agnieszka Dudło, Jolanta Turek-Szytow, Justyna Michalska, Rafał Kobylecki, Robert Zarzycki and Joanna Surmacz-Górńska</td>
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<td>Tsinghua University – China</td>
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<td>Xianbao Xu</td>
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<td>Xianbao Xu, Wenjuan Zhang, Jiaxin Shi, Xiang Li and Jacek Makinia</td>
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<td>Yue Fu</td>
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<td>Miyuki Shiratori, Hiroshi Yamamura and Takayuki Kakuda</td>
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<td>AGH University of Krakow – Poland</td>
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<td>IEM - University of Montpellier – France</td>
<td>Granular Anaerobic submerged Membrane Bioreactor for energy recovery and domestic wastewater treatment</td>
<td>Geoffroy Lesage, Lucie Sanchez and Marc Heran</td>
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<td>Xianfeng Li, Zhouyan Li, Ruobin Dai, Zhichao Wu and Zhiwei Wang</td>
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<td>Korea Polar Research Institute (KOPRI) – South Korea</td>
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<td>David Ikumi</td>
<td>University of Cape Town – South Africa</td>
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<td>Ewa Wojciechowska, Joanna Strycharz, Nicole Nawrot and Karolina Matej-Łukowicz</td>
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<td>University of Cantabria – Spain</td>
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<td>Wooyul Kim</td>
<td>Korea Institute of Energy Technology (KENTECH) – South Korea</td>
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<td>Beijing Normal University – China</td>
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<td>National University of Singapore – Singapore</td>
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<td>Enyu Liu, Lakshmi Jothinathan, C. W. Pee, K. C. Mohan, Lai Yoke Lee, Mohammad Sherafatmand, Olivier Lefebvre and How Yong Ng</td>
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## 9:00-10:30 Keynote – Plenary Hall – Engineering Department Bld. 7, Viale delle Scienze, Palermo – Italy

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<td>Cranfield University - United Kingdom</td>
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<td>EAWAG - Switzerland</td>
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### A4 – Room 9

#### Phosphorous recovery II

**Chairman:** David Ikumi  
**Authors:** South Africa

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<td>Hanyang University – South Korea</td>
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<td>Jun-Sik Kim, Seong-Yong Woo and Young-Deuk Kim</td>
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<td>Alessandra Carucci</td>
<td>University of Cagliari (DICAAR) – Italy</td>
<td>Nitrogen removal and simultaneous phosphorus recovery from agro-industrial wastewater through Partial Nitritation/Anammox process</td>
<td>Emma Dessi, Stefano Milia, Stefano Cara and Alessandra Carucci</td>
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<td>Roberto Canziani</td>
<td>Politecnico di Milano – Italy</td>
<td>Towards cost-effective and sustainable phosphorus recovery from sewage sludge ashes using a mining by-product as innovative precipitating agent</td>
<td>Gaia Boniardi, Maitane Guembe, Iñigo García-Zubiri, Lorenzo Esposito, Marco Pesenti, Roberto Canziani, Andrea Turolla</td>
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<td>Susann Müller</td>
<td>Helmholt Centre for Environmental Research-UFZ – Germany</td>
<td>Pilot plant scale wastewater biological phosphorus recovery (BioP-Rec) using brewer’s yeast</td>
<td>Vedran Vucic, Hauke Harms and Susann Müller</td>
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### B4 – Room 10

#### Water reuse risk assessment

**Chairman:** María Teresa Moreira  
**Authors:** Spain

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<td>National University of Singapore – Singapore</td>
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<td>Meibo He, Gengren Hao, Sin Mei Lim, Ghim Ping Raymond Ong, How Yong Ng, Sothinathan Kapilan and Anggraini Zulkati</td>
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<td>Sapienza University of Roma – Italy</td>
<td>Critical Evaluation on the Risk Assessment for Contaminants of Emerging Concern within the EU Regulation on Wastewater Reuse in Agriculture: A Case-Study</td>
<td>Camilla Di Marcantonio, Martina De Vita, Francesca Mangiagli, Agostina Chiavola, Simona Bongirolami, Roberto Romano and Maria Rosaria Boni</td>
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<td>National Taiwan University – Taiwan</td>
<td>A Comprehensive study of a pilot-scale MCDI-based system for water reuse: from system setup to environmental impact assessment</td>
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<td>Beatrice Cantoni</td>
<td>Politecnico di Milano – Italy</td>
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<td>Luca Penserini, Beatrice Cantoni, Elena Sezenna, Sabrina Saponaro and Manuela Antonelli</td>
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<td>Prince of Songkla University – Thailand</td>
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<td>Oslo Metropolitan University – Norway</td>
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<td>University of Toronto – Canada</td>
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### Applied governance models and environmental policies

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<td>Ghent University (CMET) – Belgium</td>
<td>Decentralized Resource Recovery from Urban Wastewater for 400 Households, including Water Reuse for Local Industry</td>
<td>Bart De Gusseme, Dries Seuntjens, Wim Jacobs and Peter De Smet</td>
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<td>The Szewalski Institute of Fluid-Flow Machinery, Polish Academy of Sciences – Poland</td>
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<td>11:30-11:45</td>
<td>Markus Starkl</td>
<td>BOKU Vienna – Austria</td>
<td>Drivers and barriers for resource recovery from decentralized wastewater treatment plants in India</td>
<td>Markus Starkl, Sukanya Das, Anju Singh and Norbert Brunner</td>
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<td>11:45-12:00</td>
<td>Rizza Ardiyanti</td>
<td>NTNU – Norway</td>
<td>Navigating Quality, Health and Environmental Risk: A Novel Framework for Wastewater Resource Recovery Products</td>
<td>Rizza Ardiyanti, Kamal Azrague, Gertjan Medema and Cynthia Hallé</td>
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<td>A5 – Room 9</td>
<td>Bio-resources refineries</td>
<td>Bio-resources refineries</td>
<td>Zeynep Cetecioglu</td>
<td>12:10-12:25</td>
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### C5 – Room 11  Novel strategies for wastewater treatment

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<tr>
<td>12:10-12:25</td>
<td>Dong Chen</td>
<td>Qingdao University of Technology – China</td>
<td>Removal of selected PPCPs and associated bacterial community variations in a pilot scale A/O-MBBR reactor system</td>
<td>Xiaowan Dong, Qingyang Bi, Dong Chen and Lihua Cheng</td>
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<td>12:25-12:40</td>
<td>Gustavo H R Silva</td>
<td>São Paulo State University – Brazil</td>
<td>Optimization of Microalgae Separation using Moringa oleifera seeds and PVC Influence through Central Composite Rotatable Design</td>
<td>Larissa Quartaroli, Patricia B. Sakamoto, Rodrigo B. Moruzzi and Gustavo H R Silva</td>
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<td>12:40-12:55</td>
<td>Lorena Coelho</td>
<td>CeNTItvc – Portugal</td>
<td>Nanosolutions and Sustainable Strategies for Wastewater Treatment Technologies</td>
<td>Lorena Coelho, Bárbara R. Gomes, Giuliana Magnacca and Francesca Deganello</td>
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### D5 – Room 12  Enhanced membrane based processes

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<td>12:25-12:40</td>
<td>Orlando García-Rodríguez</td>
<td>National University of Singapore – Singapore</td>
<td>Integration of membrane distillation and electrochemical oxidation for the comprehensive treatment of real pharmaceutical wastewater</td>
<td>Orlando García-Rodriguez, Chenyi Fang, Huan Jiang, Jinghui Deng, Joseph Imbrogno, Tim Swenson, Sui Zhang and Olivier Lefebvre</td>
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<td>12:40-12:55</td>
<td>Jhen-Cih Wu</td>
<td>National Taiwan University – Taiwan</td>
<td>Unveiling the mechanistic insights into graphitic nitrogen-enriched electrocatalytic carbon membranes for removing recalcitrant organic compounds</td>
<td>Jhen-Cih Wu, Yi-Hsueh Chuang and Chia-Hung Hou</td>
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<td>14:00-14:30</td>
<td>Menachem Elimelech</td>
<td>Yale University – USA</td>
<td>The role of membranes in resource recovery and the transition to circular economy</td>
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<td>14:45-15:15</td>
<td>How Yong Ng</td>
<td>Beijing Normal University – China</td>
<td>Advances in MBR for Resource Recovery and Energy Reduction</td>
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<td>15:15-15:30</td>
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<th>Recovery of high value bio resources</th>
<th>Chairman: María Eugenia Suárez-Ojeda – Spain</th>
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<td>16:00-16:15</td>
<td>Carlo Pastore</td>
<td>CNR IRSA – Italy</td>
<td>A New Sustainable Solvent-free Procedure for the Recovery of Grease from Urban Sewage Sludge</td>
<td>Luigi di Bitonto, Vito Locaputo, Agata Gallipoli, Camilla M. Braguglia and Carlo Pastore</td>
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<td>16:15-16:30</td>
<td>Miguel Martínez Quintela</td>
<td>BETA Technological Center, University of Vic-Central University of Catalonia (UVic-UCC) – Spain</td>
<td>Valorizing meat processing industry brines to produce added-value organic acids</td>
<td>Miguel Martínez-Quintela, Gemma Casas, Esther Vega, Laia Llenas and Lidia Paredes</td>
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<td>16:30-16:45</td>
<td>Stefano Cairone</td>
<td>Sanitary Environmental Engineering Division (SEED), Department of Civil Engineering, University of Salerno – Italy</td>
<td>Enhancing Volatile Fatty Acids Recovery through Nanofiltration: a Sustainable and Efficient Solution within the Circular Economy</td>
<td>Stefano Cairone, Amir Mahboubi, Tiziano Zarra, Vincenzo Belgiorno, Vincenzo Naddeo and Mohammad J. Taherzadeh</td>
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<td>16:45-17:00</td>
<td>Riccardo Lo Coco</td>
<td>Department of Biotechnology, University of Verona – Italy</td>
<td>Bio-based volatile fatty acids (VFAs) recovery and treatment of winery wastewater using side-stream hydrophobic membrane contactor</td>
<td>Riccardo Lo Coco, Eliisa Järvelä and Nicola Frison</td>
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<th>Chairman: How Yong NG – China, Singapore</th>
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<td>16:00-16:15</td>
<td>Yi Yang</td>
<td>College of Environmental Science and Engineering, Tongji University – China</td>
<td>A techno-economic evaluation of treatment of hybrid rainwater-sewage using the A2O-MBR process for reuse: a practical study</td>
<td>Yi Yang, Wenlong Bai and Siqing Xia</td>
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<td>16:30-16:45</td>
<td>Paola Verlicchi</td>
<td>University of Ferrara – Italy</td>
<td>Relevant contaminants of emerging concern in reclaimed water reused for irrigation – A new methodology for their selection</td>
<td>Paola Verlicchi, Vittoria Grillini, Engracia Lacasa, Edward Archer, Pawel Krzeminski, Ana I. Gomes, Vitor J.P. Vilar, Manuel A. Rodrigo, Jan Gabler and Lothar Schäfer</td>
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<td>16:45-17:00</td>
<td>Ilaria Berruti</td>
<td>CIEMAT-Plataforma Solar de Almería – Spain</td>
<td>Monitoring of bacteria, antibiotic resistance phenomenon and organic microcontaminants in a real water reuse scenery</td>
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**Session name:** Efficient wastewater treatment systems  
**Chairman:** Jacek Mąkinia  
**Poland**

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<td>16:00-16:15</td>
<td>Shenbin Cao</td>
<td>Beijing University of Technology – China</td>
<td>Stable continuous flow CANDAN process transitioning from anammox UASB reactor by facilitating indigenous nitrite-producing denitrification community</td>
<td>Shenbin Cao, Rui Du and Yongzhen Peng</td>
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<td>16:15-16:30</td>
<td>Gumersindo Feijoo</td>
<td>CRETUS, Dept. of Chemical Engineering, Universidade de Santiago de Compostela – Spain</td>
<td>Solar photocatalysis for the removal of organic micropollutants in a tubular reactor</td>
<td>Jorge González-Rodríguez, Carlos Vázquez-Vázquez, Gumersindo Feijoo and Maria Teresa Moreira</td>
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<td>Chen Dagan-Jaldety</td>
<td>Technion- Israel Institute of Technology – Israel</td>
<td>New Approach for Rb⁺ Separation from Brines Using Prussian-blue analogue (PBA) Ion-Chromatography</td>
<td>Chen Dagan-Jaldety, Paz Nativ and Ori Lahav</td>
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<td>16:45-17:00</td>
<td>Gumersindo Feijoo</td>
<td>CRETUS, Dept. of Chemical Engineering, Universidade de Santiago de Compostela – Spain</td>
<td>Two-phase partitioning bioreactors meet environmental sustainability criteria for phenolic wastewater treatment</td>
<td>Sofia Estévez, Domenica Mosca Angelucci, Maria Teresa Moreira and Maria Concetta Tomei</td>
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**Session name:** Organic based membrane modifications  
**Chairman:** Eberhard Morgenroth  
**Switzerland**

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<td>16:00-16:15</td>
<td>Duc Viet Nguyen</td>
<td>Centre for Environmental and Energy Research, Ghent University Global Campus – South Korea</td>
<td>Super-hydrophilic and positive charged pressure retarded osmosis membrane for efficient ammonia recovery and energy production</td>
<td>Duc Viet Nguyen and Di Wu</td>
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<td>16:15-16:30</td>
<td>An Ding</td>
<td>Harbin Institute of Technology School of Environment – China</td>
<td>Alleviative retention load of pathogen in ultrafiltration system via poly(amino acid)s functionalized biochar amendment based on “dynamic foldamer”</td>
<td>An Ding and Rourou Zhang</td>
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<td>16:45-17:00</td>
<td>Stefania Mottola</td>
<td>University of Salerno, Dept. of Industrial Engineering – Italy</td>
<td>Design of Cellulose Acetate Electrospun Membranes loaded with N-doped Carbon Quantum Dots for Water Remediation</td>
<td>Gianluca Viscusi, Stefania Mottola, Hebat-Allah S. Tohamy, Giuliana Gorras and Iolanda De Marco</td>
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<td>17:10-17:13</td>
<td>Meibo He</td>
<td>National University of Singapore – Singapore</td>
<td>Recovery of Ammonium-nitrogen from Effluent of AnMBR Treating Domestic Wastewater Using Polymeric Hydrogel Column</td>
<td>Meibo He, Tze Chiang Albert Ng, Boyan Xu, Shujuan Huang and How Yong Ng</td>
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<td>Bogna Sniatala</td>
<td>Gdańsk University of Technology – Poland</td>
<td>The Impact of the Initial N load on the performance of the Integrated Technology for N and P Removal and Recovery from Wastewater</td>
<td>Bogna Sniatala, Dominika Sobotka and Jacek Makinia</td>
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<td>17:16-17:19</td>
<td>Lorenzo Ventimiglia</td>
<td>University of Palermo – Italy</td>
<td>Magnesium Hydroxide Production at a Pilot Scale: Exploitation of Different Mg2+containing Solutions</td>
<td>Lorenzo Ventimiglia, Vincenzo Atria, Giuseppe Battaglia, Fabrizio Vassallo, Fabrizio Vicari, Andrea Cipollina, Giorgio Micale and Alessandro Tamburini</td>
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<td>17:19-17:22</td>
<td>Laura Antiñolo Bermúdez</td>
<td>University of Granada – Spain</td>
<td>Investigation of the agricultural reuse potential of urban wastewater and other resources derived by using membrane bioreactor technology within the circular economy framework</td>
<td>Laura Antiñolo Bermúdez, Verónica Díaz Mendoza, Juan Carlos Leyva Díaz, Jaime Martin Pascual, María del Mar Muñio Martínez and Jose Manuel Poyatos Capilla</td>
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<td>Andrea Culcasi</td>
<td>University of Palermo – Italy</td>
<td>Advancing efficiency in EDBM: investigating the interplay of pressure variations and volume management</td>
<td>Andrea Culcasi, Antonia Filingeri, Marcantonio Nanfara, Calogero Cassaro, Alessandro Tamburini, Giorgio Micale and Andrea Cipollina</td>
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<td>17:31-17:34</td>
<td>Ermelinda Falletta</td>
<td>University of Milan, Consorzio INSTM – Italy</td>
<td>The Role of Bismuth in Developing Bio-Based Materials for Efficient Polyphenol Adsorption and Solar Photodegradation</td>
<td>Ermelinda Falletta, Melissa G. Galloni, Vasilissa Nikonova, Vincenzo Fabbrizio and Claudia L. Bianchi</td>
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<td>Paolo S. Calabrò</td>
<td>Università degli Studi Mediterranea di Reggio Calabria, DICEAM – Italy</td>
<td>Batch Production of Volatile Fatty Acids from the Source Separated Organic Fraction of Municipal Solid Waste and Wastewater Sludge</td>
<td>Paolo S. Calabrò, Domenica Panganlo, Altea Pedullà and Demetrio A. Zema</td>
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<td>Amrita Bhattacharya</td>
<td>Aarhus university – Denmark</td>
<td>Recovery and Characterization of Extracellular polymeric substances from activated sludge</td>
<td>Amrita Bhattacharya, and Thomas Seviour</td>
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<td>Zixian Wang</td>
<td>CNPC Research Institute of Safety and Environmental Technology – China</td>
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<td>Zixian Wang and Jiacai Xie</td>
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<td>Joanna Strycharz</td>
<td>Gdańsk University of Technology – Poland</td>
<td>Water recovery from graywater after treatment in a green wall with the addition of modified biochar</td>
<td>Karolina Matej-Łukowicz, Joanna Strycharz, Katarzyna Bobkowska and Ewa Wojciechowska</td>
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<td>Luigi Marino</td>
<td>University of Catania – Italy</td>
<td>Control of contaminants of emerging concern (CEC) during pilot scale advanced oxidation processes (AOPs) for water reuse</td>
<td>Luigi Marino, Erica Gagliano, Domenico Santoro and Paolo Roccaro</td>
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<td>Prince of Songkla University, Department of Civil and Environmental Engineering, Faculty of Engineering – Thailand</td>
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<td>Watsa Khongnakorn, Nicha Karnjananimit, Suratsawadee Kungsanant and Chongdee Thammakhet-Buranachai</td>
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<td>Lucia De Simoni</td>
<td>Polytechnic University of Marche – Italy</td>
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<td>University of Basilicata – Italy</td>
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<td>Donatella Caniani, Francesco Di Capua, Ignazio M. Mancini and Salvatore Masi</td>
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<td>Jolanta Turek-Szytow</td>
<td>Silesian University of Technology, Department of Environmental Biotechnology – Poland</td>
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<td>Enrica Uggetti</td>
<td>Universidad Politécnica de Cataluña – Spain</td>
<td>Biostimulant capacity of wastewater grown Scenedesmus: effects on plant growth and photosynthetic activity</td>
<td>Ana Álvarez-González, Lydia Serrano, Gil Gorchs and Enrica Uggetti</td>
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<td>Ying Mei</td>
<td>Beijing normal university – China</td>
<td>Capacitive deionization with a pseudo-capacitive electrode toward highly energy efficiency and selective removal of phosphate from wastewater</td>
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<td>Petronas Nasional Berhad – Malaysia</td>
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<td>Wageningen University and research – Netherlands</td>
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<td>Domenico Santoro</td>
<td>USP Technologies – Canada</td>
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<td>University of Washington – USA</td>
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<td>Gregory Korshin, Simen Øverbø and Harsha Ratnaweera</td>
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<td>Gheorghe Asachi’ Technical University of Iasi – Romania</td>
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<td>Sun Yat-sen University – China</td>
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<td>Universitat de València – Spain</td>
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<td>Valeria Sandoval Garcia, María Victoria Ruano and Ángel Robles</td>
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<td>Department of Environmental Engineering, Inha University – South Korea</td>
<td>Electrochemical anaerobic fluidized bed membrane bioreactor to enhance methane production and fouling control for decentralized greywater treatment</td>
<td>Minseok Kim, Minyeong Lee and Jeonghwan Kim</td>
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<td>17:25-17:28</td>
<td>Jeonghwan Kim</td>
<td>Department of Environmental Engineering, Inha University – South Korea</td>
<td>Integrated Catalytic Membrane Reactor with Anaerobic Fluidized Bed Membrane Bioreactor for Wastewater Reuse Application</td>
<td>Hoseok Jang and Jeonghwan Kim</td>
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<td>17:31-17:34</td>
<td>Valeria Sandoval Garcia</td>
<td>University of Valencia – Spain</td>
<td>Direct membrane filtration of municipal wastewater at demo-scale: performance of three membrane types</td>
<td>Pau Sanchis Perucho, Valeria Sandoval Garcia, Daniel Aguado, Aurora Seco, José Ferrer and Ángel Robles</td>
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<td>17:34-17:37</td>
<td>Tian Li</td>
<td>Tongji University – China</td>
<td>Application of Nanofiltration for Drinking Water Treatment: Water Quality Improvement and Membrane Fouling Control</td>
<td>Tian Li, Huan He, Hongjian Yu, Weiyong Li, Min Wu and Bingzhi Dong</td>
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<td>17:37-17:40</td>
<td>Diogo Sousa</td>
<td>MARE - Marine and Environmental Sciences Centre, ARNET - Aquatic Research Network Associate Laboratory, NOVA FCT – Portugal</td>
<td>Which characteristics make drinking water treatment residuals a low-cost adsorbent?</td>
<td>Diogo Sousa, Maria Bernardo and Rita Mauricio</td>
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### JUNE 21 (FRIDAY)

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<td>Meet the Editors &lt;br&gt;Eberhard Morgenroth (Water Research Journal)</td>
<td>Zhen (Jason) He (Journal of Hazardous Materials, Water Environmental Research)</td>
<td>Zhiguo Yuan (Water Research X)</td>
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<td>09:00-10:30</td>
<td>A8: Enhancing biogas production &lt;br&gt;Moderator Paolo Calabro</td>
<td>Keynote#8 Zhiwei Wang</td>
<td>B7: High performance MBRs &lt;br&gt;Moderator Herman Helness</td>
<td>D7: LCA and GHG control in the water sector &lt;br&gt;Moderator Qingxian Su</td>
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<td>11:00-12:00</td>
<td>A9: Energy recovery from waste &lt;br&gt;Moderator David Ikumi</td>
<td>Keynote#8 Zhiwei Wang</td>
<td>B8: Novel MBR wastewater treatment &lt;br&gt;Moderator Dominika Sobotka</td>
<td>C7: Enhancing the drinking water treatment &lt;br&gt;Moderator Roberto Canziani</td>
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<td>12:10-13:00</td>
<td>Keynote#9 Xia Huang</td>
<td>Poster Session</td>
<td>C8: Advances in water purification &lt;br&gt;Moderator Boyan Xu</td>
<td>D8: Enhancing membrane based wastewater treatment &lt;br&gt;Moderator Jerome Harmand</td>
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<td>14:00-14:45</td>
<td>Keynote#10 Yongmei Li</td>
<td>Keynote#9 Xia Huang</td>
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<td>14:45-15:30</td>
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<td>16:00-17:00</td>
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<td>C9: Novel water reuse strategies &lt;br&gt;Moderator Vincenzo Naddeo</td>
<td>D9: Advances in environmental microbiology &lt;br&gt;Moderator Kibaek Lee</td>
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#### TOPICS
- Resource recovery from wastewater
- Drinking water treatment
- Membrane Bioreactors (MBRs)
- Metagenomics analysis and environmental microbiology
- GHG from wastewater treatment & LCA
- Desalination
- Novel membrane materials and hybrid membrane processes
- Plant-water-soil nexus, fertilizers from wastewater
- Energy recovery from water and wastewater
- Water Reuse, rainwater harvesting
### 8:15-9:00 Meet the Editors – Room 9 – Building 19, Viale delle Scienze, Palermo – Italy

**Prof. Eberhard Morgenroth** – Water Research Journal  
**Dr. Zhen (Jason) He** – Journal of Hazardous Materials, Water Environmental Research  
**Prof. Zhiguo Yuan** – Water Research

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<th>Session name</th>
<th>Nutrients and organics resource recovery</th>
<th>Chairman: Ana Soares</th>
<th>United Kingdom</th>
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<td>Presenter</td>
<td>Affiliation</td>
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<tr>
<td>9:15-9:30</td>
<td>Sheeja Jagadevan</td>
<td>Indian Institute of Technology (ISM) Dhanbad – India</td>
<td>Prospect of Seawater Utilization as a Source of Magnesium for Struvite Synthesis from Distillery Wastewater for Sustainable Resource Recovery</td>
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<td>9:30-9:45</td>
<td>Eugenio Marín Marín</td>
<td>FCC AQUALIA – Spain</td>
<td>From Wastewater Treatment Plants to Biorefineries: Successful Cases in the Recovery of Nutrients from Urban Wastewater</td>
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<td>9:45-10:00</td>
<td>Silvia Venditti</td>
<td>University of Luxembourg – Luxembourg</td>
<td>Using biochar recovered from cellulose as a novel admixture in Nature-based Solutions</td>
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<td>10:00-10:15</td>
<td>Xinhua Wang</td>
<td>Jiangnan University – China</td>
<td>Integrating anaerobic acidification with two-stage forward osmosis concentration for simultaneously recovering organic matter, nitrogen and phosphorus from municipal wastewater</td>
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<td>10:15-10:30</td>
<td>Pere Olives</td>
<td>Venvirotech Biotechnology S.L. &amp; LEQUIA, University of Girona – Spain</td>
<td>Key parameters for high volatile fatty acids concentration and ethanol separation through membrane technologies</td>
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<td>Time</td>
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<td>9:00-9:30</td>
<td>Zhiwei Wang</td>
<td>Tongji University – China</td>
<td>Keynote: Integration of Artificial Intelligence into Membrane-based Water Treatment: From Mechanisms to Processes</td>
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<td>9:30-9:45</td>
<td>Mariia Pasichnyk</td>
<td>Technische Universität Dresden – Germany</td>
<td>Removal of Ibuprofen, Diclofenac and Metoprolol by Commercial Membranes</td>
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<td>9:45-10:00</td>
<td>Fangang Meng</td>
<td>Sun Yat-sen University – China</td>
<td>In-situ enrichment of denitrifying consortia for biological wastewater treatment using a membrane-based microbial incubator: A pilot-scale study</td>
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<td>10:00-10:15</td>
<td>Kwang-Ho Choo</td>
<td>Kyungpook National University – South Korea</td>
<td>Enhancing sustainability: Upcycled membrane distillation for the production of eco-friendly fertilizers from anaerobic membrane bioreactor effluent</td>
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<td>10:15-10:30</td>
<td>Watsa Khongnakorn</td>
<td>Prince of Songkla University – Thailand</td>
<td>MBR Performance in a Rubber Smoked Sheet Plant: A Case Study of Small Agricultural Cooperatives</td>
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<tr>
<td>9:00-9:15</td>
<td>Jingzhou Zhou</td>
<td>Tongji University – China</td>
<td>Biogenic Palladium Improved the Perchlorate Removal in Nitrate Co-removal Hydrogenotrophic Biofilm Matrix via Enhancing the Electron Transfer</td>
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<td>9:15-9:30</td>
<td>Wei Shi</td>
<td>Tongji University – China</td>
<td>Metal-organic Framework with Dual Synergistic Active Sites Enables Electrochemically Highly-selective Removal of Arsenic from Water</td>
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<td>Aji Angga</td>
<td>Chung Yuan Christian University – Taiwan</td>
<td>Molecular-level insights into the degradation of dissolved organic matter from cyanobacteria-impacted water by electro-oxidation and electro-Fenton</td>
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<td>10:00-10:15</td>
<td>Na Li</td>
<td>Wuhan university – China</td>
<td>Triple Increase in GDM Flux through Key Foulant Elimination by Bank Filtration</td>
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<td>10:15-10:30</td>
<td>Pierre Bérubé</td>
<td>University of British Columbia – Canada</td>
<td>Assessment of Ultrafiltration Ageing in Full-Scale Drinking Water Treatment Facilities</td>
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<tr>
<td>9:00-9:15</td>
<td>Korneel Rabaey</td>
<td>Ghent University – Belgium</td>
<td>Resource recovery and decentralized treatment go hand in hand: urine source separation as a key component of urban water management</td>
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<td>9.15-9.30</td>
<td>Florent Chazarenc</td>
<td>Inrae UR reversaal – France</td>
<td>Carbon redirection instead of mineralization: what are the main solutions to upgrade existing large activated sludge systems?</td>
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<td>Marta Behjat</td>
<td>Chalmers – Sweden</td>
<td>Circularity perspectives from combining aquaculture and agriculture with biochar; assessing the flow of carbon, nitrogen and phosphorus</td>
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<td>Antonin Azais</td>
<td>Inrae UR reversaal – France</td>
<td>Mainstream nitrogen recovery in large WRRF: a multi-criteria analysis of available technologies</td>
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<td>10:00-10:15</td>
<td>Lin Gao</td>
<td>Technio, Israel Institute of Technology – Israel</td>
<td>Controlling Nitrous Oxide Emissions in Single-Stage Partial Nitrification and Anammox Reactors Under Hypersaline Conditions</td>
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<td>10:15-10:30</td>
<td>Ewa Zaborowska</td>
<td>Gdańsk University of Technology – Poland</td>
<td>Predicting N₂O emissions in full-scale activated sludge systems through mechanistic approach and machine learning: Heading toward generalized model structure development</td>
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### A8 – Room 9

**Session name:** Enhancing biogas production  
**Chairman:** Paolo Calabrò  
**Italy**

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<td>11:00-11:15</td>
<td>Qian Ping</td>
<td>Tongji University – China</td>
<td>Combination of CaO&lt;sub&gt;2&lt;/sub&gt; Pretreatment and Two-phase Anaerobic Digestion to Enhance Methane Production of Waste Activated Sludge</td>
<td>Danlei Cai, Qian Ping and Yongmei Li</td>
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<td>11:15-11:30</td>
<td>Takayuki Kakuda</td>
<td>Chuo University – Japan</td>
<td>Biogas Upgrading by Shortened HRT in Anaerobic Membrane Bioreactor Treating Waste Activated Sludge</td>
<td>Takayuki Kakuda, Tomohiro Tobino and Hiroshi Yamamura</td>
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<td>11:30-11:45</td>
<td>Grazia Policastro</td>
<td>Telematic University Pegaso – Italy</td>
<td>Optimization of the feeding condition for mixed culture photo fermentative hydrogen and polyhydroxyalcanohates production from dark fermentation effluents</td>
<td>Grazia Policastro, Alessandra Cesaro, Giovanni Dal Piggetto and Massimiliano Fabbricino</td>
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<td>11:45-12:00</td>
<td>Bruna Sampaio de Mello</td>
<td>Sao Paulo State University – Brazil</td>
<td>Biogas production from soybean molasses: a pilot-scale study</td>
<td>Bruna Sampaio de Mello, Brenda Clara Gomes Rodrigues, Alex Valério dos Santos, Daniel Thomaz and Arnaldo Sarti</td>
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### B8 – Room 10

**Session name:** Novel MBR wastewater treatment  
**Chairman:** Dominika Sobotka  
**Poland**

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<td>Hyunwoong Park</td>
<td>Kyungpook National University – South Korea</td>
<td>Electrolysis-coupled bipolar membrane electrodialysis for desalination of seawater and production of value-added chemicals</td>
<td>Byeong-Ju Kim, Dong Suk Han and Hyunwoong Park</td>
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<td>Geoffroy Lesage</td>
<td>European Institute of membranes, University of Montpellier, CNRS, ENSCM – France</td>
<td>Integrating Biological Treatment and Electro-Oxidation in an Anaerobic Biomass Membrane Bioreactor for Innovative and Integrating Urban Wastewater Treatment</td>
<td>Olga El Kik, Geoffroy Lesage, François Zaviska, Andréas Sauvêtre, Marc Heran and François Lestremau</td>
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<td>11:30-11:45</td>
<td>Hayato Kawasaki</td>
<td>Chuo university – Japan</td>
<td>Potential of Microwave Digestion/Phosphate Adsorption Membrane Treatment for Recovery of High Purity Phosphoric Acid from Eutrophic Lake Sediment</td>
<td>Hayato Kawasaki, Takayuki Kakuda, Takao Ouchi, Satoru Fukuda, Hiroaki Furumai and Hiroshi Yamamura</td>
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<td>11:45-12:00</td>
<td>Kibaek Lee</td>
<td>Chonnam National University – South Korea</td>
<td>Benefits of quorum quenching in gravity-driven membrane (GDM) for energy savings in an MBR for wastewater treatment</td>
<td>Jun-U Jang, Jeongmi Park, Hyeyeon Park, Hyunjung Kim, Seonki Lee and Kibaek Lee</td>
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Session name: Advances in water purification  
Chairman: Boyan Xu, China

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<td>Viacheslav Dzyubenko</td>
<td>JSC RM Nanotech – Russia</td>
<td>Operating experience of a new generation of reverse osmosis spiral-wound membrane elements by Membranium at power industry facilities</td>
<td>Viacheslav Dzyubenko and Anton Borodastov</td>
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<td>Olivier Lefebvre</td>
<td>National University of Singapore</td>
<td>Reduced UF Fouling Using Electro-coagulation to Pre-treat Seawater for Desalination: A Lab-scale Continuous Demonstration</td>
<td>Enyu Liu, Lakshmi Jothinathan, K. C. Mohan, Lai Yoke Lee, Mohammad Sherafatmand, Olivier Lefebvre and How Yong Ng</td>
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<td>11:30-11:45</td>
<td>Kuichang Zuo</td>
<td>Peking University – China</td>
<td>Ultrahigh Anti-wetting Property of PACH Composite Membrane for Extreme Concentration of Hypersaline Water in Membrane Distillation</td>
<td>Ruixue Zhao and Kuichang Zuo</td>
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<td>Alessandro Tamburini</td>
<td>University of Palermo – Italy</td>
<td>An Innovative Plant for the Desalination and Treatment of Produced Waters</td>
<td>Giovanni Campisi, Alessandro Cosenza, Serena Randazzo, Alessandro Tamburini and Giorgio Micale</td>
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### D8 – Room 12  
Session name: Enhancing membrane based wastewater treatment  
Chairman: Jerome Harmand, France

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<td>11:00-11:15</td>
<td>Rajashree Yalamanchili</td>
<td>University of Girona, LEQUIA – Spain</td>
<td>Can 90% Wastewater Recovery be Achieved through Forward Osmosis with Seawater? A Simulation Study</td>
<td>Rajashree Yalamanchili, Gaëtan Blandin, Albert Galizia and Ignasi Rodriguez-Roda</td>
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<td>Tian Li</td>
<td>Tongji University – China</td>
<td>Modification of Nanofiltration Membrane with Metal Disulfide for Enhanced Water Treatment</td>
<td>Tian Li, Junxia Liu, Pei Cao, Xuri Yu, Hongjian Yu, Min Wu, Weiyi Li and Bingzhi Dong</td>
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<td>11:30-11:45</td>
<td>Shuai Liang</td>
<td>Beijing Forestry University – China</td>
<td>Efficient Water Purification with An Ultrafiltration-Enhanced Electrochemical Dual-Membrane Filtration System</td>
<td>Mengyao Gu and Shuai Liang</td>
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<td>11:45-12:00</td>
<td>Xiaohu Zhai</td>
<td>Tongji University – China</td>
<td>Unlocking the Precise Mechanisms of Ion Separation in Nanofiltration Membranes: A New Perspective from Decoupling Dehydration and Dehydration-Induced Hindrance</td>
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<td>Xia Huang</td>
<td>School of Environment, Tsinghua University – China</td>
<td>Challenges toward carbon neutrality of anaerobic MBR for municipal wastewater treatment</td>
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<td>14:45-15:15</td>
<td>Yongmei Li</td>
<td>Tongji University – China</td>
<td>Frontiers in Phosphorus Removal and Recovery in Circular Economy Perspective</td>
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## A9 – Room 9  
Session name: Energy recovery from waste  
Chairman: David Ikumi South Africa

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<td>Oriol Carbó</td>
<td>LEQUIA &amp; GS-Inima – Spain</td>
<td>Stable and controlled mainstream HRAS, partial nitrification AGS and anammox for a suitable effluent quality</td>
<td>Oriol Carbó, Jaume Teixidó, Joan Canals, Antonio Ordóñez, Albert Magrí, Mercè Baldí, Belén Gutiérrez and Jesús Colprim</td>
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<td>Domenico Santoro</td>
<td>University of Western Ontario – Canada</td>
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<td>Ali Khadir, Amr Abdelrahman, Ferenc Hazi, Domenico Santoro, Chris Sheculski, Eunkyung Jang, Ahmed Al-Omari, Katherine Bell, John Walton, Chris Muller and George Nakhla</td>
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<td>16:30-16:45</td>
<td>Queralt Farras</td>
<td>Eurecat – Spain</td>
<td>Towards a Sustainable Biorefinery: Integrated Treatment of the Liquid Fraction of Digestate from the Organic Fraction of Municipal Solid Waste Scale Up from Laboratory to Pilot-Scale</td>
<td>Queralt Farràs, Caroline Sielfeld, Carme Bosch, José Ramon Vazquez, Antonio Gimenez, Denis de Wilde, Wouter Naessens, Gloria Sánchez, Eloisa Albacete, Francesc Prenafeta-Boldú, José Manuel González and Flavia Pastorino</td>
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<tr>
<td>16:45-17:00</td>
<td>Farideh Jamali-Behnam</td>
<td>Institute of Environmental Science and Research – New Zealand</td>
<td>Can water conserving toilet be a solution to achieve higher energy recovery from co-digestion of toilet waste and kitchen waste?</td>
<td>Farideh Jamali-Behnam, Ricardo Bello-Mendoza, María Gutierrez-Gines, Kristin Bohm and Fatemeh Jamali-Behnam</td>
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### B9 – Room 10

**Session name**: Fertilizers for sustainable agriculture  
**Chairman**: Xia Huang  
**China**

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<td>16:00-16:15</td>
<td>Yvan Poussade</td>
<td>Veolia – France</td>
<td>SmartFertiReuse: an innovative solution for agricultural irrigation with treated wastewater</td>
<td>Chrystelle Ayache, Gaëla Leroy, Céline Bruyère, Yvan Poussade and Maelenn Poitrenaud</td>
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<td>16:15-16:30</td>
<td>Justyna Michalska</td>
<td>Silesian University of Technology – Poland</td>
<td>Evaluation of the Applicability of Organo-mineral Post-sorbents as Conditioners for Acidic and Organic-matter Poor Soil Based on Physiological Parameters of Planted Crops and Metabolic Activity of Soil Microorganisms</td>
<td>Justyna Michalska, Jolanta Turek-Szytow, Agnieszka Dudlo, Bożena Nowak and Joanna Surmacz-Górska</td>
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<td>16:30-16:45</td>
<td>Praveena Gangadharan</td>
<td>Indian Institute of Technology Palakkad – India</td>
<td>Performance evaluation and optimization of Magnesium air fuel cell for phosphorus recovery from source separated urine</td>
<td>Vivekanandan Sangeetha, Rinu Anna Koshy and Praveena Gangadharan</td>
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<td>16:45-17:00</td>
<td>Enrica Uggetti</td>
<td>Univeristat Politècnica de Catalunya (UPC) – Spain</td>
<td>Characterization Reed Bed-Treated Sludge for Sustainable Agriculture: Rest Periods and Sludge Quality Assessment</td>
<td>Enrica Uggetti, Ana Cano-Larrotta, Roger Castellnou, Ulum Colomer and Rebeca Moreno</td>
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### C9 – Room 11

**Session name**: Novel water reuse strategies  
**Chairman**: Vincenzo Naddeo  
**Italy**

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<tr>
<td>16:00-16:15</td>
<td>Beatrice Cantoni</td>
<td>Politecnico di Milano – Italy</td>
<td>From Literature Gaps to Integrated Risk Assessment: Unveiling the Complexity of Wastewater Reuse Impact Models</td>
<td>Luca Penserini, Beatrice Cantoni and Manuela Antonelli</td>
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<td>16:15-16:30</td>
<td>Lidia Paredes</td>
<td>BETA Technological Center – Spain</td>
<td>New strategies to promote water recovery and reuse in the meat industry</td>
<td>Miquel Bistue, Miguel Martinez-Quintela, Oscar Osegueda, Daniel Cantabella, Laura Mejias and Lidia Paredes</td>
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<td>16:30-16:45</td>
<td>Adriana Romero</td>
<td>CETAQUA - Water Technology Center – Spain</td>
<td>LIFE CONQUER project: Advanced Water Reclamation Process for nutrient-brine valorization in Spain</td>
<td>Adriana Romero, Eva Mena, Simón Nevado, Elena de Vicente, Benoît Lefèvre, Carlos Echevarría, Jose Luis Cortina and Julio López</td>
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<td>16:45-17:00</td>
<td>Flavia Zraick</td>
<td>SUEZ – France</td>
<td>Drivers and technical challenges for water reuse in India: a range of process solutions in 3 case studies</td>
<td>Flavia Zraick, Punit Singh, Lakshya Kumar, Sophie Bertrand, Mathieu Delahaye</td>
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<td>Oona Kinnunen</td>
<td>Aalto University – Finland</td>
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<td>Oona Kinnunen, Antonina Kruglova, Marlene Mark Jensen, Anna Kuokkanen, Barth F. Smets and Anna Mikola</td>
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<td>Biomass production and metagenomic analysis on municipal wastewater treatment systems using microalgae and carriers</td>
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<td>University of the Highlands and Islands – United Kingdom</td>
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<td>Center for Renewable Energy Sources and Saving, CRES – Greece</td>
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<td>Municipal Waterworks and Sewerage Company in Warsaw – Poland</td>
<td>&quot;Water Recovery from Wastewater&quot;: Key to sustainable development in Warsaw – Poland</td>
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