

International Conference on

# EMERGING TRENDS IN WATER TREATMENT 2024

September 17<sup>th</sup> to 19<sup>th</sup> 2024 at Mikkeli, Finland

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# 1. 1<sup>ST</sup> INTERNATIONAL CONFERENCE ON EMERGING TRENDS IN WATER TREATMENT 2024 (ETWT-2024)

Welcome to join us at Mikkeli, Finland, from September 17<sup>th</sup> to 19<sup>th</sup>, 2024 as we bring water enthusiasts and environmental experts to exchange scientific knowledge and experiences.

The conference takes place mainly at the Mikaeli Concert and Congress Hall in Mikkeli, Finland. In addition, the Get Together event will be organized at Café Rauha on Tuesday 17.9.2024. The conference dinner will take place in Kyyhkylä Manor on Wednesday 18.9.2024. On Thursday 19.9.2024, you will be able to visit also Mikkeli wastewater treatment plant and the laboratories of LUT University in Mikkeli. Please note that the registration for these events was done with the conference registration.

The conference is organized together with [the City of Mikkeli](#), [Mikkeli Development Miksei](#), [Blue Economy Mikkeli \(BEM\)](#), [South-Eastern Finland University of Applied Sciences \(Xamk\)](#) and [Mikkeli University Consortium \(MUC\)](#) as a part of [Mikkeli Water Week](#).

We hope that you will enjoy the conference and have fruitful discussions!



## 2. PROGRAM

The program is available at <https://www.lut.fi/en/etwt-2024/program>.

Below is a preliminary program overview; we reserve the right to make minor changes.

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### Pre-conference day (17.9.2024)

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19:00 – 22:00    **Get together and registration at Café Rauha**  
Address: Ristimäenkatu 4, 50100 Mikkeli

A light buffet will be served during the event, and you can join the event at any time during 7 pm and 10 pm.

The shop at [Muisti Centre of War and Peace](#) is open for visitors until 8 pm.

*Event is sponsored by [Mikkeli University Consortium \(MUC\)](#).*

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## 1<sup>st</sup> conference day (18.9.2024)

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### Mikaeli Concert and Congress Hall

Address: Sointukatu 1, 50100 Mikkeli

- 8:00 – 9:00 Registration and morning coffee  
*Poster presenters, please add your posters in the spaces reserved for them before the start of the official programme.*
- 9:00 – 9:15 Opening words by Vice Rector Jaana Sandström and Professor Amit Bhatnagar  
9:15 – 9:55 Keynote Speech by Prof. Prosun Bhattacharya: *Arsenic in global groundwater: A prospective overview of occurrences, mitigation and policy for management*
- 9:55 – 10:15 Break; company exhibition

### Session 1: Emerging contaminants and advanced materials in water treatment

Session chair: Post-doctoral researcher Kinga Skalska-Tuomi

- 10:15 – 10:30 Jajati Mandal: *PFAS Adsorption on Water Treatment Residues*  
10:30 – 10:45 Samkeliso S. Ndzimandze: *Lab Scale Removal of Bulk Parameters and Chromophoric Fractions of Natural Organic Matter by Porous Kaolin/Fly Ash Ceramic Membrane at South African Drinking Water Treatment Plants*  
10:45 – 11:00 Mohammad Bhuyan: *Removal of microplastics from water using triethoxy(octyl)silane modified superhydrophobic geopolymer filter*  
11:00 – 11:15 Monika Wojciechowska: *The impact of the quality of treated wastewater on the selection of water reclamation technology*  
11:15 – 11:30 Chirag Godiya: *A novel approach combining sorption and UV/sulfite treatment for effective PFAS elimination from effluents*  
11:30 – 11:45 Anusree P C: *Degradation of Nitrophenol using hydrodynamic and acoustic cavitation processes in combination with advanced oxidation processes*
- 12:00 – 13:00 Lunch
- 13:00 – 13:40 Keynote Speech by Mikko Laitinen: *From traditional CAS to MBR – what does it mean for operations?*
- 13:40 – 14:00 Break; company exhibition

### Session 2: Resource recovery, water reuse and recycling

Session chair: Professor Susana Rodriguez Couto

- 14:00 – 14:15 Elias Hakalehto (Jouni Pesola as substitute): *CirclnWater project BioResque aims at the recycling of industrial fiber sludge*  
14:15 – 14:30 Orkun Pinar: *Techno-economic assessment of enzymatic Bisphenol A removal from aqueous solutions*  
14:30 – 14:45 John Kwame Bediako: *Recovery techniques for circularity of critical raw material metals from secondary sources*  
14:45 – 15:00 Hemanta Timilsina: *Continuous and semi-continuous cultivation of a green microalga Haematococcus pluvialis in recirculating aquaculture effluent: strategies for sustained biomass production and astaxanthin synthesis*
- 15:00 – 16:00 Coffee with poster presentations and company exhibition

**18:00 – 22:00**    **Conference dinner at Kyyhkylä Manor**

The main building of Kyyhkylä Manor was originally built in 1856, but the history of the manor dates back to the 17th century.

A shuttle bus will be provided from Mikkeli city center to Kyyhkylä Manor and back. The bus will leave from the hotels Scandic Mikkeli and Sokos Hotel Vaakuna at 18:00.

Dress code: Smart casual

Please keep your name plate with you!

*The conference dinner is sponsored by the City of Mikkeli.*



© Kyyhkylä

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## 2<sup>nd</sup> conference day (19.9.2024)

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### Mikaeli Concert and Congress Hall

Address: Sointukatu 1, 50100 Mikkeli

9:00 – 9:40 Keynote Speech by Dr. Mohamed Ateia Ibrahim: *Forward Thinking PFAS Solutions: From Waste Remediation to Safer Alternatives*

9:40 – 10:10 Coffee break; poster presentations and company exhibition

### Session 3: Bioremediation and hybrid processes in wastewater

Session chair: Post-doctoral researcher Orkun Pinar

10:10 – 10:25 Prashant Srivastava: *Beneficial Use of Brine from Coal Seam Gas Mining*

10:25 – 10:40 Akash Rawat: *Assessment of Photocatalytic Degradation of Bisphenol A and Ecotoxicity Using  $\alpha$ -MnO<sub>2</sub>/Bi<sub>2</sub>O<sub>3</sub> Heterojunction Photocatalyst in Varied Water Matrices*

10:40 – 10:55 Mahdiyeh Mohammadzadeh: *Degradation of levofloxacin in Aqueous Solution by Peroxymonosulfate and Cobalt-magnetite Pine Bark Bionanocomposites*

10:55 – 11:10 Adarsh Singh: *Navigating Hospital Wastewater Management in Developing Countries Towards Sustainable Solutions*

11:10 – 11:25 Kamonwan Khanthong: *Screening of microbial species isolated from PFAS contaminated area for bioremediation*

11:40 – 11:50 **Awards for best oral and poster presentations**

12:00 – 13:00 Lunch

13:00 – 16:00 **Site visits to wastewater treatment plant and laboratories of LUT University**

Bus transportation will be provided from the Concert and Congress Hall Mikaeli. Please check the list of names in the lobby to see which bus has a seat reserved for you.

#### **Mikkeli wastewater treatment plant**

The wastewater treatment plant of Mikkeli uses purification technology (membrane bioreactors) that is highly advanced by international standards. The plant was built in a network of caverns blasted deep into the bedrock, covering an area the size of six football pitches beneath the ground.

Blue Economy Mikkeli (BEM) is an international centre of excellence focusing on water expertise, especially the circular economy of the water supply. Testing and piloting facilities have been designed in connection with the Mikkeli wastewater treatment plant specifically for this purpose. This unique RDI environment enables a diverse range of RDI and production activities for companies utilising a genuine wastewater treatment plant environment.

#### **Laboratories of LUT University in Mikkeli**

LUT University has 500 m<sup>2</sup> of laboratories in Mikkeli with laboratory and bench scale equipment to study for example adsorption, oxidation, algae technology, and biotechnology. The research infrastructure covers both analytical instruments as well as larger pilots, enabling comprehensive research from the synthesis of new materials to the piloting of new solutions with real wastewaters.

### 3. KEYNOTE SPEAKERS



**Professor Prosun Bhattacharya** holds a PhD in Sedimentary Geochemistry from University of Delhi, India (1990). Besides KTH, he also held an Adjunct Professor at University of Southern Queensland, Australia between 2016 and 2019. Since January 2020, he is appointed as Affiliate Scientist at the KWR Water Research Institute in the Netherlands.

His primary research interests address the challenges with arsenic, fluoride and geogenic contaminants in groundwater and drinking water treatment in different parts of the world. He has collaborative research engagements with several universities and research organizations across the world. He is leading the Sida funded bilateral Research Capacity Building programs between Sweden and Tanzania as well as Sweden and Bolivia, focusing on drinking water contamination from groundwater sources and treatment. He has coordinated the prestigious Swedish International Development Cooperation Agency supported action research and implementation project "Sustainable Arsenic Mitigation-SASMIT" Community driven initiatives to target arsenic safe groundwater as sustainable mitigation strategy in Bangladesh (2007-2017).

In addition, he has led the project in collaboration with UNICEF-Bangladesh on "Enhancing private sector capacity for scaling up access to safe drinking water - policy, systems strengthening and sustainable service delivery" and currently leading a project on "Enhancing private sector capacity and digital data management for arsenic risk reduction in Bangladesh" in collaboration with UNICEF-Bangladesh and DPHE, Government of Bangladesh. Since March 2020, he is actively working with the global initiative on the wastewater-based epidemiology as a global collaborative effort to maximize contributions in the fight against COVID-19 and other emerging viruses which involves the academic, government, research institutions and the Community based organizations.



**Mikko Laitinen** has been in integral role in building a growth platform for Operon companies which are core part of Aurora Yhtiöt Plc's Water Treatment Segment. He holds a M.Sc. (Tech) in Industrial Management from Tampere University of Technology.

His professional background is from global stock listed companies in chemical and steel industry, in which he has been in various leadership roles including Sales, Sourcing, Supply Chain Management, Business Control and Strategy. He has been in Water Treatment Operations business for a decade and building a growth path for a private service provider towards municipalities and industrial companies. The unifying factor in his career has been change management and building partnerships.

Due to numerous transformation projects, his specialty area is improving the performance of processes that cross functional boundaries through implementing changes in operating methods as well as implementation of processes and tools that support operations.





**Dr. Mohamed (Moha) Ateia Ibrahim** is Group Leader with the United States Environmental Protection Agency (U.S. EPA), Center for Environmental Solutions and Emergency Response (CESER). Moha combines his expertise in environmental chemistry and materials chemistry to develop and evaluate innovative water treatment technologies to remove and/or degrade emerging contaminants, such as PFAS and microplastics. In parallel, Moha has initiated and is currently leading a multi-agencies project to evaluate the environmental impacts of PFAS-replacement chemicals and formulations in firefighting foams and consumer products.

He is a member of the Weapons Systems and Platforms Technical Committee of fluorine-free foams (F3) for the U.S. Department of Defense's SERDP-ESTCP Program. Moha is also an Adj. Assistant Professor at Chemical & Biomolecular Engineering Department, Rice University. Prior to joining the US EPA, he was a Research Associate in the Department of Chemistry, Northwestern University, Post-doc at Clemson University, and Visiting Researcher at the University of Copenhagen. Moha received his B.S. degree from Alexandria University, Egypt, and his M.S. degree and Ph.D. degree from Tokyo Institute of Technology, Japan.

## 4. POSTER PRESENTATIONS

1. Vu Luong: *Enhancing Municipal Wastewater Treatment: A Novel Combined Configuration Process for Organic and Nutrient Removal*
2. Monika Liugé: *Electrocoagulation Process and Application of Three Dimensional Porous Aerogels as Adsorbent for Removal of Textile Dyes from Wastewater*
3. Tuomas Sinisaari: *Ultrafiltration in purification of sheep wool scouring effluents*
4. Abir Melliti: *Optimisation and modeling of metronidazole adsorption on biochar using experimental design and machine learning approaches*
5. Asmit Baral: *Microwave Synthesis of MIL-100(Fe)/In<sub>2</sub>S<sub>3</sub> Composite for Photocatalytic Degradation of Diclofenac*
6. George Earl: *<sup>19</sup>F NMR spectroscopy as a practical tool for the rapid quantification of aqueous PFAS after treatment with activated carbon*
7. Sanni Sipinen: *Media attention on water-related impacts of the precursor material factory in Hamina*
8. Adarsh Singh: *Unveiling the potential of functional organic-frameworks-based materials for remediation of 'forever chemicals' from aqueous solutions*
9. Pooja Singh: *An integrated approach towards microalgal biomass production on dairy wastewater with its potential for bio-oil production in a biorefinery manner*
10. Ville-Hermanni Sotaniemi: *Fish Processing Wastewater Treatment by Microalgae and Biomass Harvesting*
11. Ville-Hermanni Sotaniemi: *Screening of microalgae strains for continuous dairy water effluent treatment*
12. Ulla Moilanen / Satu Tiainen: *Combined Biogas Production and Microalgae Treatment of Industrial Wastewater*

