

Winter School



Winter School on Contaminants of Emerging Concern (CECs) and Disinfection By-Products (DBPs)

Occurrence, Impact and Elimination

Scope and Objectives

Water is critical in both agriculture and food processing, as well as in nutrition and human health. Industrialization, agricultural activities, and climate change are reducing the quality of water sources.

The Drinking Water Directive was revised in 2020 and new rules entered into force across the EU in January 2021. The revised Directive guarantees safer access to water for all **Europeans and ensures the highest standards in the world for drinking water, in line with** the zero-pollution ambition announced in the European Green Deal. The new rules also respond to the first-ever successful European Citizens' Initiative, "Right2Water", which gathered 1.6 million signatures in support of improving access to safe drinking water for all Europeans. The Directive aims to protect EU citizens' health by setting strict quality standards. Member States had to transpose this Directive into national laws by 12 January 2023. Work is ongoing on further methodologies and guidelines required by the Drinking Water Directive, including on how to measure disinfection byproducts (DBPs), micro-plastics and per- and polyfluoroalkyl substances (PFASs) in drinking water. Moreover, the Commission adopted **new minimum hygiene standards for materials and products that come into contact with drinking water**. They will apply as of 31 December 2026 to materials and products used in new installations, or when older installations are renovated or repaired. These standards will prevent microbial growth and reduce the risk of harmful substances leaching into drinking water.

Treated wastewater can provide a continuous source of high-quality water with the potential to help meet future water needs, especially for agricultural purposes. However, if not treated properly, wastewater reuse can pose risks to public health and the environment, given the potential presence of toxic chemicals and pathogenic microorganisms. To ensure the safe reuse of wastewater for crop irrigation, the European Union (EU) has adopted the EU Regulation on minimum requirements for water reuse (REGULATION (EU) 2020/741). Furthermore, the EU has proposed a new Urban Wastewater Treatment Directive (Brussels, 26.10.2022 COM(2022) 541 final 2022/0345 (COD)) targeting new standards and limit values, and obligations for large wastewater treatment plants (WWTPs) to reduce by 80% a specified set of contaminants of emerging concern (CECs).

The **Winter School** event thus aims to present an overview of the current state of knowledge and the latest advances regarding the occurrence, impact, and elimination of Disinfection By-Products (DBPs), Contaminants of Emerging Concern (CECs), and microbial contamination to provide solutions face to risks in providing safe drinking water and alternative water sources for crops production.

The Winter School is organized under the scope of four European projects



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BlueWWater project, Control, treatment and reduction of microplastics and contaminants of emerging concern in urban wastewater and the transboundary coastal environment (Control, tratamiento y reducción de microplásticos y contaminantes emergentes en aguas residuales urbanas y en el medio costero transfronterizo) (www.bluewwater.eu)

BlueWWater is an POCTEP-funded project that aims to improve the quality of river, transitional and coastal water bodies by controlling, monitoring and evaluating emissions of microplastics and contaminants of emerging concern into the aquatic environment, through the study of the efficiency of urban wastewater treatment plants (WWTP) in both regions and the environmental risk of these pollutants, thus ensuring a sustainable use of water resources and contributing to the implementation of community regulations. BlueWWater has a budget of 1.4 million Euros and a three-years duration. It started on 1st September 2023 and includes a multidisciplinary and multi-stakeholder consortium from Portugal and Spain, including leading scientists from 11 partners.

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H2OforAll Project, Innovative integrated tools and technologies to protect and treat drinking water from Disinfection By products (DBPs) (<https://h2oforall.eu>)

The H2OforAll project, entitled, is an ambitious Horizon Europe-funded project that aims to assess main Disinfection By products (DBPs) sources through the development of fast, cost-effective and accurate sensor monitoring devices and by modelling their spread through drinking water distribution systems. DBPs toxicity and environmental impact will be studied and measures will be proposed to protect drinking water chain. Breakthrough water treatments to remove DBPs or avoid their formation during water disinfection processes will be developed, paying attention to their life cycle analysis, costs and risks. A Central Knowledge Base with reliable data on the occurrence of DBPs in the EU and their effects will be created to increase awareness and engagement of society and governmental organizations about these drinking water contaminants and favour new policy responses and guidance. H2OforAll has a budget of 3.5 million Euros over three years. It started on 1st November 2022 and includes a multidisciplinary and multi-stakeholder consortium, including leading scientists from 10 European countries.

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MAR2PROTECT Project, Innovative managed aquifer recharge to prevent groundwater contamination (<https://mar2protect.eu>)

MAR2PROTECT is a Horizon Europe-funded project that will provide a holistic approach to prevent groundwater contamination from the impacts of global change and climate change based on a new-generation Managed Aquifer Recharge. The core of this innovative Managed Aquifer Recharge is M-AI-R Decision Support System that will incorporate technological and societal engagement information using an Artificial Intelligence-based approach to improve groundwater quality and quantity. To ensure a high replication potential, M-AI-R Decision Support System will collect information from 5 demos sites in 4 European countries (Portugal, Italy, Spain, Netherlands) and 2 in non-European countries (Tunisia, South Africa) which were carefully chosen by their degree of maturity from previous successful projects and a wide range of settings in terms of climatic conditions, water sources, type of pollution, Managed Aquifer Recharge scheme and political/societal context. All technologies will be tested and validated until Technology Readiness Level 5 and societal activities will be implemented until Societal Readiness Level 6. Besides, MAR2PROTECT will ensure a strong engagement of national and European policy makers that, in collaboration with a Community of Practice, will strengthen the European policy framework in the field of prevention of groundwater contamination. MAR2PROTECT has a budget of 4.1 million Euros over three years. It started on 1st December 2022 and includes a multidisciplinary and multi-stakeholder consortium, including leading scientists from 9 from 6 different European countries (including Switzerland) and 2 international partners (Tunisia, South Africa).

ALERT-PFAS Project, Transnational strategy for the detection and prevention of water pollution by PFAS

ALERT-PFAS project in an INTERREG V SUDOE-funded project that will design and implement a transnational strategy to detect and prevent PFAS pollution in SUDOE natural spaces (Portugal, Spain and France), as well as to mitigate its effects on ecosystem biodiversity and climate change. ALERT-PFAS project offers an innovative solution to detect and monitor PFAS in real time and prevent them from becoming part of the water cycle, contaminating the air, soil and water. The pilot actions will be carried out in natural parks or protected areas in Portugal, Spain and France, affected by the recent fires. ALERT-PFAS also aims to train and sensitize all the stakeholders in the value chain, including the general public. ALERT-PFAS partnership is made up of 10 beneficiaries and 9 associates from the 3 SUDOE countries, who will contribute their complementary skills. ALERT-PFAS will apply innovative technologies such as optical sensors, adsorption and degradation processes, polymeric materials, nanotechnology and artificial intelligence. The solution, which can be transferred to all the regions in the SUDOE area, is aimed at public authorities, natural park managers, water managers, firefighting organizations, civil protection and others.

And the support of:



Rede NOR-WATER - <http://nor-water.eu>

The NOR-WATER Network was created under the NOR-WATER project funded by the POCTEP 2014-2017, to provide a forum for multidisciplinary public-private collaboration on the subject of contaminants of emerging concern, with the operational and proactive capacity to facilitate collaboration between its users and act as a driving force and promoter of initiatives in this field.

ZeroPollution4Water Cluster (European Union) - <https://zeropollution4water.eu>

The ZeroPollution4Water Cluster is an initiative originated from the coalition of seven different projects funded from two Horizon Europe 2022 calls aiming at: i) preventing groundwater contamination and protecting its quality against harmful impacts of global and climate change; ii) securing drinking water quality by protecting water sources against pollution, providing innovative monitoring and treatment solutions, and ensuring safe distribution.

Conference Program

The Winter School includes: (i) a section specifically devoted to PhD students (“**Floor to Students**”) where they will have the chance to present a **poster communication**, as well as to meet experts from the School; (ii) a **workshop on Publishing Perspectives**; (iii) **workshop on European Directives on Drinking Water, Water Reuse and Urban Wastewater Treatment**; (iv) **lectures on Complementary Skills** related to high-throughput methodologies for the determination of DBPs, CECs, PFASs, microplastics, ARB and ARGs, environmental and health impacts and prevention measures and, technologies for control of DBPs, CECs, PFASs, microplastics, ARB and ARGs; (v) **workshop on Wastewater Treatment and Reuse**; and (vi) a **co-creation workshop on Future Challenges in Drinking Water Sector - public engagement, communication and raising awareness**; (vii) **networking Opportunities and Exhibition of water treatment related products and services**.

The **workshop on publishing perspectives** will be given by the Executive Publisher of Elsevier for Chemical and Environmental Engineering, and Executive Editors of the Journal Environmental and Chemical Engineering (Elsevier) and will feature a coffee break sponsored by Elsevier. A range of topics will be covered concerning the publication of scientific articles starting from their preparation, going through the review process, and then ending with the editorial decision and possible transfers of rejected manuscripts to alternative journals. The publisher’s, editor’s, and author’s points of view will be discussed, and the workshop will conclude with a roundtable during which questions will be taken from the audience. Questions can be either sent before the workshop (to vilar@fe.up.pt) or asked during the roundtable. Master and PhD students and junior researchers are encouraged to interact with editors and publishers.

The **workshop on European Directives on Drinking Water, Water Reuse and Urban Wastewater Treatment**, with the participation of Water Europe, National Laboratory of Civil Engineering (LNEC) and Water and Waste Services Regulation Authority (ERSAR), will present the news and challenges regarding drinking water, wastewater treatment and reuse. An overall situation of Poly- or Perfluoroalkyl substances (PFASs) will be also addressed.

Lectures on complementary skills will be given by senior researchers, professors and professionals, with high expertise in the topics of: i) high-throughput methodologies for the determination of DBPs, CECs, PFASs, microplastics, ARB and ARGs, ii) environmental and health impacts and prevention measures and, iii) technologies for control of DBPs, CECs, PFASs, microplastics, ARB and ARGs (e.g., ozonation, advanced oxidation processes, membrane filtration, adsorption, biological oxidation, nature-based solutions), as other topics such as CFD simulation, LCA/LCC and water digitalization.

The **workshop on Wastewater Treatment and Reuse** will include several invited talks from i) coordinators of European projects funded by Life, INTERREG, WaterJPI, and Horizon Europe programs, as well as Portuguese Recovery and Resilience Plan, presenting the project goals and main results, ii) water utilities (Águas do Tejo e Atlântico) and companies (Xylem, USP Technologies, ADVENTECH, Aqualia, Arrow Lake AB and Air Liquide), showing case studies and real applications; iii) round table discussion addressing current industry trends, challenges, or innovations.

The **co-creation workshop on Future Challenges in Drinking Water Sector - public engagement, communication and raising awareness** will include i) goals and challenges of ZeroPollution4Water Cluster, H2OforAll, IntoDBP and SafeCREW Horizon Europe projects, Portuguese scenario regarding DBPs, Australia and USA scenarios on DBPs, and ii) opportunity to participate in a round table discussion in the following topics: DBPs technologies for drinking water treatment; Analytical techniques; Public engagement; Legislation; Preventive measures; How to increase the acceptance of tap water. The workshop includes also invited talks from companies (De Nora Water Technologies Italy S.r.l., Air Liquide, Lutz Jesco GmbH).

Invited Lectures are typically of 10-20 min, including questions.

Program Summary

Sunday, November 24 th	Monday, November 25 th		Tuesday, November 26 th	November, 27 th - 29 th
<p>Social Event 1 Walking Tour through Historic Places of Vila Nova de Gaia and Porto</p> <p>Meeting point: World of Wine Central Square</p> <p>Departure time: 13h</p> <p>Return time: 17h</p>	07:30 - 08:00	Registration		<p>EA3G2024 International Conference on Ozone and Advanced Oxidation</p> <p>Organizer: International Ozone Association (IOA)</p> <p>Winter school participants have a reduced fee, equivalent to ioa members, in ea3g2024 conference</p>
	08:00 - 08:30			
	08:30 - 09:00	Opening Ceremony	Workshop on Wastewater Treatment and Reuse - Part I	
	09:00 - 10:30	Workshop on Publishing Perspectives: Q&A in Chemical and Environmental Engineering Publishing		
	10:30 - 11:00	Poster Session & Coffee Break & Exhibition	Poster Session & Coffee Break & Exhibition	
	11:00 - 12:30	Workshop on European Directives on Drinking Water, Water Reuse and Urban Wastewater Treatment	Workshop on Wastewater Treatment and Reuse - Part II	
	12:30	Winter School Official Photo		
	12:30 - 14:00	Lunch Break	Lunch Break	
	14:00 - 15h15	High-Throughput Methodologies for the Determination of DBPs, CECs, PFASs, Microplastics, ARB and ARGs	Co-creation Workshop: Future Challenges in Drinking Water Sector - Public Engagement, Communication and Raising Awareness - Part I	
	15:15 - 16:00	Environmental and Health Impacts and Prevention Measures		
	16:00 - 16:30	Poster Session & Coffee Break & Exhibition	Poster Session & Coffee Break & Exhibition	
	16:30 - 18:00	Technologies for Control of DBPs, CECs, PFASs, Microplastics, ARB and ARGs	Co-creation Workshop: Future Challenges in Drinking Water Sector - Public Engagement, Communication and Raising Awareness - Part II	
			Awards Ceremony and Final Remarks	
	18:00 - 19:00	CFD, LCA/LCC and Digitalization	<p>Social Event 3 Visit to Ferreira Wine Cellars</p>	
<p>Social Event 2 - Porto de Honra Women's Engineering Tuna of the University of Porto</p>		<p>Social Event 4 Dinner at Sancho Panza & Drink at Galerias de Paris</p>		



Sunday, November 24, 2024

13:00 - 17:00

**World of Wine
Central Square**

Walking Tour through Historic Places of Vila Nova de Gaia and Porto, Social Event 1
or

Visit to one of the World of Wine Museums, Social Event 1
In the case of bad weather conditions (Rainy day)



Monday, November 25, 2024

07:30 - 08:30

Lobby

Registration

08:30 - 09:15

Room Nasoni

Opening Ceremony

Vitor Vilar, *Host and Chair, Faculty of Engineering of the University of Porto, Portugal*
Baltazar de Castro, *Director of REQUIMTE, Faculty of Sciences of the University of Porto, Portugal*
Fernando Pereira, *Director of the Department of Chemical and Biological Engineering, Faculty of Engineering of the University of Porto, Portugal*
Joaquim Faria, *Director of LSRE-LCM, Faculty of Engineering of the University of Porto, Portugal*
Margarida Quina, *Director of CERES, University of Coimbra, Portugal*
Miguel Lemos, *Chairman/CEO, Águas de Gaia, Portugal*

09:15 - 10:30

Room Nasoni

Workshop on Publishing Perspectives: Q&A in Chemical and Environmental Engineering Publishing

Chaired by **Suresh Pillai**, *Atlantic Technological University, Ireland*

09:15 - 09:45

How to Become a Successful and Responsible Author: Editor Perspectives
Despo Fatta-Kassinou
University of Cyprus, Cyprus

09:45 - 10:00

Elsevier's Article Transfer Service and Its Impact on Environmental and Chemical Engineering Journals
Giovanni Palmisano
Khalifa University, United Arab Emirates

10:00 - 10:30

Round Table Discussion

10:30 - 11:00

Lobby

Poster session & Coffee break (sponsored by Elsevier) & exhibition

**Monday, November 25, 2024 (cont.)**

- 11:00 - 12:30** **Workshop on European Directives on Drinking Water, Water Reuse and Urban Wastewater Treatment**
 Room Nasoni
Chaired by **Loïc Charpentier** (Water Europe, Belgium) and **Susana Rodrigues** (ERSAR, Portugal)
- 11:00 - 11:15 **EU Directive on Drinking Water: News and Challenges**
Susana Rodrigues
Entidade Reguladora dos Serviços de Águas e Resíduos (ERSAR), Portugal
- 11:15 - 11:30 **Water Reuse in EU: Regulation on Minimum Requirements and JRC Guidelines on Risk Management Plan**
Loïc Charpentier
Water Europe, Belgium
- 11:30 - 11:45 **EU Directive on Urban Wastewater Treatment: News and Challenges**
Maria João Rosa
Laboratório Nacional de Engenharia Civil, Portugal
- 11:45 - 12:00 **On the Overall situation of Poly- or Perfluoroalkyl substances (PFASs) including Fluoropolymers**
Bruno Ameduri
Institute Charles Gerhardt (CNRS), France
- 12:00 - 12:30 **Round Table Discussion**
- 12:30** **Winter School Official Photo**
 WOW Main Square
- 12:30 - 14:00** **Lunch Break**
 Lobby Atkinson
- 14:00 - 15:15** **High-Throughput Methodologies for the Determination of DBPs, CECs, PFAS, Microplastics, ARB and ARGs**
 Room Nasoni
Chaired by **Félix Hernández**, University Jaume I, Spain
- 14:00 - 14:15 **Targeted and Non-targeted Analysis of Disinfection Byproducts in Drinking Water**
Maria José Farré
Catalan Institute for Water Research, Spain



Monday, November 25, 2024 (cont.)

- 14:15 - 14:30 **Analytical Methodologies for Contaminants of Emerging Concern (CECs), including Per-/poly-FluoroAlkylated Substances (PFASs)**
José Benito Quintana
University of Santiago de Compostela, Spain
- 14:30 - 14:45 **Challenges and Methodologies for Sampling and Determination of Microplastics in Wastewaters, Inland Surface Waters, and Marine Waters**
Maria Augusta de Sousa/Juan Santos Echeandía
Águas e Energia do Porto, Portugal/Spanish Institute of Oceanography, Spain
- 14:45 - 15:00 **Methodologies for the Determination of Antibiotic-Resistant Bacteria (ARB) and Antibiotic-Resistance Genes (ARGs) in Environmental Samples**
Olga Nunes
Faculty of Engineering of the University of Porto, Portugal
- 15:00 - 15:15 **Real-Time Monitoring**
Rogério Nunes Nogueira
Instituto de Telecomunicações, Portugal
- 15:15 - 16:00** **Environmental and Health Impacts and Prevention Measures**
 *Room Nasoni* Chaired by **Paola Verlicchi**, University of Ferrara, Italy
- 15:15 - 15:30 **Ecotoxicology of Contaminants of Emerging Concern: Key Challenges and Approaches**
Miguel Santos
Interdisciplinary Centre of Marine and Environmental Research, Portugal
- 15:30-15:45 **Understanding DBPs: Ranking, Environmental Impacts and Associated Health Risks**
Daniela Meilmann
DHVMED, Israel
- 15:45 - 16:00 **Back to Basics: Key Principles and Approaches in Environmental Risk Assessment**
Vera Homem
Faculty of Engineering of the University of Porto, Portugal
- 16:00 - 16:30** **Coffee break & Posters & Exhibition**
 *Lobby*
- 16:30 - 18:00** **Technologies for Control of DBPs, CECs, PFAs, Microplastics, ARB and ARGs**
 *Room Nasoni* Chaired by **Salomé Soares**, Faculty of Engineering of the University of Porto, Portugal



Monday, November 25, 2024 (cont.)

- 16:30 - 16:45 **Ozone Fundamentals**
Sylvie Baig
Suez, France
- 16:45 - 17:00 **Ozone and Advanced Oxidation Processes – Key Features**
Sylvie Baig
Suez, France
- 17:00 - 17:15 **Hybrid Adsorption/Membrane Processes for Controlling Organic Contaminants of Emerging Concern in Urban Water Treatment**
Maria João Rosa
Laboratório Nacional de Engenharia Civil, Portugal
- 17:15 - 17:30 **Adsorption Processes for the Removal of Contaminants of Emerging Concern and Disinfection By-Products**
Dario Frascari
University of Bologna, Italy
- 17:30 - 17:45 **Biological Removal and Recovery of Micro/plastics**
Maria Reis
NOVA School of Science & Technology, Portugal
- 17:45 - 18:00 **Nature-Based Solutions - Natural and Constructed Wetlands to Remove Pollutants and Potentiate Water Reuse**
Marisa Almeida
Interdisciplinary Centre of Marine and Environmental Research, Portugal
- 18:00 - 19:00** **CFD, LCA/LCC and Digitalization**
 **Room Nasoni** Chaired by **Susana Gonzalez Blanco** (CETAQUA, Spain) and **Domenico Santoro** (USP Technologies, Canada)
- 18:00 - 18:15 **Seeing the Light, the Microbes, and the Dead Zones: Computational Fluid Dynamics (CFD) for Advanced Disinfection and Oxidation Process Analysis**
Domenico Santoro
USP Technologies, Canada
- 18:15 - 18:30 **Life Cycle Thinking Applied to Drinking Water Treatment**
Rafael Laurenti
IVL Swedish Environmental Research Institute, Sweden



Monday, November 25, 2024 (cont.)

- 18:30 - 18:45 **Digitalization in the Water Sector: Development of a Reliable Real-Time Virtual Trihalomethane Sensor Solution for Drinking Water Facilities**
Susana Gonzalez Blanco
CETAQUA, Spain

- 18:45 - 19:00 **Digitalization in the Water Sector**
Lydia Vamvakeridou-Lyroudia
University of Exeter, United Kingdom

- 19:00 - 20:00 **Porto de Honra (Welcome Drink)**
Women's Engineering Tuna of the University of Porto
(TUNAFE – Tuna Feminina de Engenharia da Universidade do Porto), Social Event 2
Looby



Tuesday, November 26, 2024

- 08:00 - 10:30** **Workshop on Wastewater Treatment and Reuse - Part I**
Room Nasoni Chaired by **Maria João Rosa** (LNEC, Portugal) and **Célia Manaia** (Universidade Católica Portuguesa, Portugal)

- 08:00 - 08:20 **Water Reuse Strategies in Portugal**
Nuno Brôco
Águas do Tejo e Atlântico, Portugal

- 08:20 - 08:30 **Status Implementation of EU Reuse Regulation 2020/741 in Germany - Wastewater Reuse for Agriculture and Urban Irrigation**
Achiem Ried
Xylem, Germany

- 08:30 - 08:40 **The Reuse of Reclaimed Water in Italy: Polishing Treatments, Destination, Risk Assessment**
Paola Verlicchi
University of Ferrara, Italy

- 08:40 - 08:50 **Challenges Associated with Wastewater Treatment and Reuse in Brazil**
Camila Amorim
Federal University of Minas Gerais, Brazil

- 08:50 - 09:00 **Overview of the EU-India Collaboration on Water Treatment Technologies**
Suresh Pillai
Atlantic Technological University, Ireland

- 09:00 - 09:10 **Reclaimed Water Distribution: Chlorine Decay Modelling and Case Study Application**
B-WaterSmart - H2020
Rui Viegas
Laboratório Nacional de Engenharia Civil, Portugal



Tuesday, November 26, 2024 (cont.)

- 09:10 - 09:20 **Innovative Strategies for Industrial Wastewater Reuse: A Case Study and Practical Approaches**
Sérgio Silva
ADVENTECH, Portugal
- 09:20 - 09:30 **An Overview of Project GIATEX - Intelligent Water Management in the Textile and Clothing Industry** [GIATEX - PRR](#)
Fernando Pereira
Faculty of Engineering of the University of Porto, Portugal
- 09:30 - 09:40 **Closed-Loop Water Systems in Textile Industrial Districts: Orchestrated Removal of Emerging Pollutants from Textile Wastewater** [CASCADE - Life](#)
Beatrice Cantoni
Politecnico di Milano, Italy
- 09:40 - 09:50 **AWARE - Aquaponics from Wastewater Reclamation** [AWARE - Horizon Europe](#)
Célia M. Manaia
Universidade Católica Portuguesa, Portugal
- 09:50 - 10:00 **Advancing Water Purification: PANIWATER's Innovations in Tackling Contaminants of Emerging Concern for Safe Irrigation and Drinking Water** [PANIWATER - India-EU H2020](#)
Despo Fatta-Kassinou
University of Cyprus, Cyprus
- 10:00 - 10:10 **Anaerobic Processes Combined with Membranes to Ensure Water Reuse and Net Energy Production**
Nicolás Morales
Aqualia, Spain
- 10:10 - 10:30 **Round Table Discussion**
- 10:30 - 11:00** **Poster Session & Coffee Break & Exhibition**
 Lobby
- 11:00 - 12:30** **Workshop on Wastewater Treatment and Reuse - Part II**
 Room Nasoni
Chaired by **Nuno Brôco**, Águas do Tejo e Atlântico, Portugal



Tuesday, November 26, 2024 (cont.)

- 11:00 - 11:10 Wastewater Regeneration by the Solar Photo-Fenton Process: From the Lab to the Plant. LIFE ULISES & LIFE PHOENIX projects [ULISES & PHOENIX - LIFE](#)
José Luis Casas
University of Almería, Spain
- 11:10 - 11:20 Demonstrating the Control of Pharmaceutical Compounds in Large Activated Sludge Wastewater Treatment Plants [Fitting - LIFE](#)
Catarina Silva
Laboratório Nacional de Engenharia Civil, Portugal
- 11:20 - 11:30 Potential of Decentralized Wastewater Treatment for Preventing the Spread of Antibiotic Resistance, Organic Micropollutants, Pathogens and Viruses [PRESAGE - WaterJPI](#)
Francisco Omil
University of Santiago de Compostela, Spain
- 11:30 - 11:40 Control, Treatment and Reduction of Microplastics and Emerging Pollutants in Urban Wastewater and the Transboundary Coastal Environment - The BlueWWater Project and Rede NOR-WATER – POCTEP
[BlueWWater and Rede NOR-WATER – INTERREG POCTEP](#)
Patricia Quinta Pérez
CETMAR, Spain
- 11:40 - 11:50 Transnational Strategy for the Detection and Prevention of Water Pollution by PFAS
[ALERT-PFAS – INTERREG SUDOE](#)
João M. M. Araújo
NOVA School of Science and Technology, Portugal
- 11:50 - 12:00 Advancing Municipal Wastewater Disinfection with Novel Disinfectants and Advanced Process Control Strategies
Domenico Santoro
USP Technologies, Canada
- 12:00 - 12:10 Effluent Ozonation in Urban Wastewater Treatment Plants – A Growing Opportunity To Exploit Synergies in the Activated Sludge Process
Jan Mante
Air Liquide, Germany
- 12:10 - 12:20 The Issues of Using Oxygen from Electrolysis for Ozone Generation
Arnaldo Oliveira Araújo
Air Liquide, Portugal



Tuesday, November 26, 2024 (cont.)

- 12:20 - 12:30 **Preserving Fresh Produce Quality: The Crucial Role of Process Water**
Camilla Khrulova
Arrow Lake AB, Sweden
- 12:30 - 14:00** **Lunch Break**
 Lobby Atkinson
- 14:00 - 16:00** **Co-Creation Workshop: Future Challenges in Drinking Water Sector - Public
Engagement, Communication and Raising Awareness - Part I**
 Room Nasoni
Chaired by **Rui Martins** (University of Coimbra, Portugal) and **Maria José Farré** (ICRA, Spain)
- 14:00 - 14:15 **ZeroPollution4Water Cluster – Goals, Challenges and projects involved**
Loïc Charpentier, *Water Europe, Belgium*
Rui Martins, *University of Coimbra, Portugal*
- 14:15 - 14:30 **The Regulatory Approach to Disinfection By-Products**
Luís Simas
Entidade Reguladora dos Serviços de Águas e Resíduos (ERSAR), Portugal
- 14:30 - 14:40 **Upgrading Water Treatment Plants to Comply with the DBPs Standards Introduced by the
Directive (EU) 2020/2184**
Paolo Roccaro
University of Catania, Italy
- 14:40 - 14:50 **The Perfect Balance on Improving Water Quality by Reducing Bioproduct, while CAPEX Drops
Down and Operations in Disinfection Benefits**
Vincenzo Rocca
Lutz Jesco GmbH, Portugal
- 14:50 - 15:00 **O₃+BAF (Biological Activated Filter) to make Fewer Disinfection Byproducts**
Cristian Carboni
De Nora Water Technologies Italy S.r.l., Italy
- 15:00 - 15:10 **Ozone Strong Water, an Innovative Side-Stream Injection Technology for Ozone Applications
as Micropollutant Abatement and Disinfection**
Jan Mante
Air Liquide, Germany
- 15:10 - 15:30 **DBPs - A Showcase from Around the World: Prevention Measures and Practices**
Daniela Meilmann
DHVMED, Israel



Tuesday, November 26, 2024 (cont.)

- 15:30 - 16:00 **Unravelling Consumers' Awareness and Engagement with Residential Water Quality: The Case of Disinfection By Products (DBPs)**
Evangelos Pournaras
University of Leeds, UK
- 16:00 - 16:30** **Poster Session & Coffee Break & Exhibition**
 Lobby
- 16:30 - 17:30** **Co-Creation Workshop: Future Challenges in Drinking Water Sector - Public Engagement, Communication and Raising Awareness - Part II**
 Room Nasoni
Chaired by **Rui Martins** (University of Coimbra, Portugal) and **Maria José Farré** (ICRA, Spain)
- 16:30 - 17:15 **RoundTable Discussion**
Topics to be Discussed: Technologies for DPBs; Preventive Measures; Public Engagement (How to Increase the Acceptance of Tap Water)
Discussion Facilitators: **Rui Martins; Evangelos Pournaras; Luísa Durães; Daniela Meilman; Luís Simas; Loïc Charpentier; Maria José Farré; Beatrice Cantoni; Paolo Roccaro; Jaume Cotoí; Miguel Lemos; Jan Mante; Cristian Carboni; Vincenzo Rocca**
- 17:15 - 17:30 **Take-Home Messages**
- 17:30 - 17:50** **Awards Ceremony and Final Remarks**
Ana Pereiro, Host and Chair, NOVA University Lisbon, Portugal
João Araújo, Host and Chair, NOVA University Lisbon, Portugal
Luísa Durães, Host and Chair, University of Coimbra, Portugal
Rui Martins, Host and Chair, University of Coimbra, Portugal
Rita Lado, Local Organizing Committee, Faculty of Engineering of the University of Porto, Portugal
Susana Seabra, Host and Chair, Sociedade Portuguesa de Inovação, Portugal
Vítor Vilar, Host and Chair, Faculty of Engineering of the University of Porto, Portugal
- 18:00 - 20:00** **Visit to Ferreira Wine Cellars, Social Event 3**
 Lobby
- 20:00 - 02:00** **Dinner at Sancho Panza (Cais de Gaia) & Drink at Galerias (Porto), Social Event 4**
 Ferreira Wine Cellars or WOW Main Square

Chairs



Ana Belén Pereiro Estévez
NOVA University Lisbon, Portugal



João Miguel Mendes de Araújo
NOVA University Lisbon, Portugal



Luísa Maria Rocha Durães
University of Coimbra, Portugal



Rui Carlos Cardoso Martins
University of Coimbra, Portugal



Susana Seabra
Sociedade Portuguesa de Inovação, Portugal



Vítor Jorge Pais Vilar
*Faculty of Engineering of the
University of Porto, Portugal*

Local Organizing Committee

Faculty of Engineering of the University of Porto, Portugal

Adrián Manuel Tavares da Silva
Ana Alexandra da Silva Pereira
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