



CSRW24

1st International Conference on Circularity, Sustainability and Resilience in Water, Wastewater and Sludge Management

February 11th - 13th, 2024
Varese, Italy

CONFERENCE PROGRAMME (draft)



**UNIVERSITÀ DEGLI STUDI
DELL'INSUBRIA**

Department of Theoretical
and Applied Sciences



**ARISTOTLE
UNIVERSITY
OF THESSALONIKI**

Department of Chemistry



The conference will be held in **Aula Magna Granero-Porati**, University of Insubria, Via Dunant 3, Varese.

On Tuesday 13th (16:00-18:00) [to be confirmed], a walking **guided tour** will be organized in order to visit the city center of Varese. The participation is free.

For any update, please visit the website www.csrw24.it

Day 1 – Sunday, February 11

17:30 – 19:00

Registration & Welcome Cocktail

Day 2 – Monday, February 12

8:30 – 9:30

Registration

9:30 – 10:00

Opening

A. Tagliabue

Magnificent Rector of the University of Insubria

D. Galimberti

Mayor - Municipality of Varese

A. Coen Porisini

Municipality of Varese and University of Insubria

M. Ferrari

Director of the Department of Theoretical and Applied Sciences, University of Insubria

V. Torretta

President of Engineering Study Courses, Department of Theoretical and Applied Sciences, University of Insubria

10:00 – 10:45 **Plenary Presentation**

Enhanced municipal wastewater treatment for micropollutant abatement:

The experience with ozonation

Urs von Gunten

Eawag, Swiss Federal Institute of Aquatic Science and Technology, Duebendorf, Switzerland
EPFL, Ecole Polytechnique Fédérale, Lausanne

10:45 – 11:00

Coffee break

Session 1 | Novel/enhanced treatment of wastewater

Chair: A. Zouboulis

11:00 - 11:15 **Keynote**

Acid mine drainage wastewater treatment technologies, emphasizing a neutralizing process by the use of ultrabasic rocks obtained as waste/by-product from chromite mining

A. Zouboulis

School of Chemistry-Laboratory of Chemical & Environmental Technology, Aristotle University of Thessaloniki, Greece

11:15 - 11:30

Removal of dyes from wastewaters by adsorption on natural adsorbents: banana, orange and pomegranate peels

A. Tolkou

Department of Chemistry, International Hellenic University, Greece

11:30 - 11:45

Graphitic carbon nitride derivatives functionalized with bromine for wastewater depuration

E. Russo

Department of Industrial Engineering, University of Padova, Italy

11:45 - 12:00

Heavy Metals Separation in Wastewater Comparing Magnetic different magnetic nanoparticles embedded in alginate beads

S. Copelli

Department of Sciences and High Technology, University of Insubria, Italy

12:00 - 12:15

Hazard evaluation and prioritization of emerging contaminants in the aquatic environment using in silico approaches

E. Papa

Department of Theoretical and Applied Sciences, University of Insubria, Italy

12:15 - 12:30

Antimicrobial biomass-derived materials for wastewater treatment

E. Gover

Department of Polytechnic of Engineering and Architecture (DPIA), University of Udine, Italy

12:30 - 12:50

Question Time and Discussion

12:50 – 14:15

Lunch

Session 2 | Treated wastewater reuse

Chair: *G. Bertanza and M. Szabo*

14:15 - 14:30 **Keynote**

Wastewater reuse: a long story

G. Bertanza

Department of Civil, Environmental, Architectural Engineering and Mathematics, University of Brescia, Italy

14:30 - 14:45

Water quality and wastewater reuse in buildings: actual problems and solutions

M. Szabo

Hungarian University of Agriculture and Life Sciences, Hungary

14:45 - 15:00

A post treatment of wastewater for its reuse

J. Jurik

Department of Environmental Engineering, Slovak University of Technology, Bratislava, Slovakia

15:00 - 15:15

Wastewater reuse for street sweeping in a full scale WWTP: the case of Besozzo

D. Cecconet

Alfa S.r.l., Gallarate, Italy

15:15 - 15:25

Wastewater treatment in touristic facilities of the Samarkand region of Uzbekistan

M.G. Nosirov

Samarkand State University, Uzbekistan

15:25 - 15:35

Water and wastewater management and recycling in educational spaces: a case study of Karadeniz technical university in Trabzon, Türkiye

D. Navabiasl

Karadeniz Technical University, Trabzon, Türkiye

15:35 - 16:00

Question Time and Discussion

16:00 – 16:20

Coffee break

Session 3 | Energy saving and process optimisation

Chair: *R. Canziani and F. Conti*

16:20 - 16:35 **Keynote**

From energy consuming to energy neutral plants: how to get there?

R. Canziani

Department of Civil and Environmental Engineering, Environmental Section, Polytechnic of Milan, Italy

16:35 - 16:50

Cost recovery and self-finance in waste management: lessons from sdc's operations in faridpur municipality

I. Khondoker Hamidul

Society Development Committee (SDC), Bangladesh

16:50 - 17:05

Carbon footprint on WWTP construction operations

L. Croce

Department of Civil, Constructional and Environmental Engineering, University of Rome "La Sapienza", Italy

17:05 - 17:20

Circular and closed-loop approaches for algae: a bioeconomy perspective for Latvia

F. Romagnoli

Faculty of Electrical and Environmental Engineering, Institute of Energy Systems and Environment, Riga Technical University, Latvia

17:20 - 17:30

Environmental life cycle analysis of different water supply pipes: a case from Bologna, Italy

S. Pennellini

Department of Civil, Chemical, Environmental and Material Engineering, University of Bologna

17:30 - 17:40

Integrating Nature-Based Solutions for Sustainable Water Management and Resilience Against Climate Change in Urban Context

M. Feofilovs

Institute of Energy Systems and Environment, Riga Technical University, Riga, Latvia

17:40 - 18:00

Question Time and Discussion

Day 3 – Tuesday, February 13

Session 4 | Emerging pollutants: the problem of microplastics

Chair: L. Pollegioni and E.C. Rada

09:30 - 09:50 **Keynote**

Advancing biological processing for valorization of plastic wastes

L. Pollegioni

Department of Biotechnology and Life Sciences, University of Insubria, Italy

09:50 - 10:05

Life cascade: removal of mps and pfas from textile wastewater

I. Gambino

Department of Science and High Technology, University of Insubria, Italy

10:05 - 10:20

Occurrence and removal of pharmaceuticals in Slovak wastewater treatment plants

I. Bodík

Department of Environmental Engineering, Slovak University of Technology, Bratislava, Slovakia

10:20 - 10:30

Microplastic release from synthetic clothes: from a problem to a resource

R. Zullo

CNR – National Research Council, Roma, Italy

10:30 - 10:40

Microplastics in wastewater treatment plants: a focus on the sludge line

M. Carnevale Miino

Department of Theoretical and Applied Sciences, University of Insubria, Italy

10:40 - 10:50

Microplastic in the outlets of municipal wastewater treatment plants of a highly urbanized area in the Lombardy region, Italy

S. Galafassi

Water Research Institute, National Research Council, Verbania, Italy

10:50 - 11:05

Question Time and Discussion

11:05 – 11:25

Coffee break

Session 5 | Sludge management and integration with the cycle of waste

Chair: M. Ragazzi and A. Tolkou

11:25 – 11:40 **Keynote**

Perspectives of sewage sludge management

M. Ragazzi

Department of Civil, Environmental and Mechanical Engineering, University of Trento, Italy

11:40 – 11:55

Sewage sludge as a potential resource integrated in landfill biocovers: an experimental study

F. Tatàno

Department of Pure and Applied Sciences, University of Urbino "Carlo Bo", Italy

11:55 – 12:10

Recovering sludge from wastewater treatment plants: the impact of thermal treatment of pharmaceuticals

D. Varjùová

Department of Environmental Engineering, Slovak University of Technology, Bratislava, Slovakia

12:10 - 12:20

Sewage sludge desiccation through solar greenhouses: from pilot to full-scale

M. Mainardis

Department of Polytechnic of Engineering and Architecture (DPIA), University of Udine, Italy

12:20 - 12:30

Optimization of phosphorus wet acid extraction from sewage sludge ashes

G. Boniardi

Department of Civil and Environmental Engineering, Environmental Section, Polytechnic of Milan, Italy

12:30 - 12:40

Biochar-recovery material from biological sewage sludge and agri-food waste

S. Bellazzi

Department of Civil and Architectural Engineering, University of Pavia, Italy

12:40 - 12:50

Consideration on the environmental impacts of different treatments of sewage sludge

M. Schiavon

Department of Agronomy, Food, Natural Resources, Animals and Environment, University of Padova, Italy

12:50 - 13:00

Question Time and Discussion

13:00 – 14:30

Lunch

Session 6 | Groundwater: characterization, management and remediation

Chair: R. Sethi and G. Ionescu

14:30 - 14:50 **Keynote**

High-resolution site characterization for an effective aquifer cleanup

R. Sethi

Department of Environment, Land and Infrastructure Engineering, Polytechnic of Turin, Italy

14:50 - 15:05

A sustainable approach for chlorinated solvent contaminated groundwater remediation: Raw Polyhydroxyalkanoates (PHA) as electron donor for BRD coupled with adsorption on biochar

M. Petrangeli Papini

Department of Chemistry, University of Rome "La Sapienza", Italy

15:05 - 15:20

In-situ application of colloidal activated carbon for the remediation of chlorinated solvents contaminated groundwater: an Italian case study

M. Cappelletti Zaffaroni

ERM Italia S.p.A, Milan, Italy

15:20 - 15:35

Fungal lignocellulose-degrading enzymes and their application in bioremediation

L. Mezule

Department of Water Engineering and Technology, Riga Technical University, Latvia

15:35 - 15:45

Advanced nanoremediation processes for the effective removal of complex mixtures of persistent pollutants from groundwater

C. Bianco

Department of Environment, Land and Infrastructure Engineering, Polytechnic of Turin, Italy

15:45- 15:55

In situ remediation of chlorinated solvents-contaminated groundwater: from site characterization to the monitoring of natural attenuation (MNA) by biomolecular and isotopic tools

F. Formicola

Università of Milano Bicocca, Italy

15:55 - 16:05

Biosensors for the detection of contaminants in wastewater

A. Cossetti

Department of Polytechnic of Engineering and Architecture (DPIA), University of Udine, Italy

16:05 - 16:20

Question Time and Discussion

Session 7 | Short communications

Chair: V. Torretta and E.C. Rada

16:20 - 17:20 | 5 min each

Microplastics in wastewater treatment plants: a scoping review at worldwide level

A. Zoccali

Polytechnic of Milan, Italy

Modelling wastewater treatment plant odour dispersion in weak wind conditions: importance of high resolution meteorological data

C. Morosini

Department of Science and High Technology, University of Insubria, Italy

Wastewater treatment and sludge disposal in the Province of Varese: how a territory can shape the water treatment and the management of residues

C. Cosco

Alfa S.r.l., Gallarate, Italy

The concept of water from a sustainable perspective within universities

R. Giurea

Department of Industrial Engineering and Management, Lucian Blaga University of Sibiu, Romania

Sludge management and integration with the cycle of waste*M. Falcone*

Neutalia S.r.l., Busto Arsizio, Italy

Management of biological sludges in Lombardy: characteristics, data and rules*S. Padovani*

ARPA Lombardia, Milano, Italy

Incentives and barriers affecting the transition towards the circular economy: a systematic literature review*M. Scacchi*

Department of Economics (DiECO), University of Insubria, Italy

Arsenic (III) removal from water by the synergistic action of Graphene Oxide (GO) and Granular Ferric Hydroxide (GFH)*A.P.D. Baltrocchi*

Department of Theoretical and Applied Sciences, University of Insubria, Italy

Microplastics in zooplankton: a case study in Lake Como, Italy*J. Lawrance*

Department of Science and High Technology, University of Insubria, Italy

Arsenic and sulfadiazine adsorption by a Fe-hydrochar produced from olive pomace*P. Altimari*

Department of Chemistry, Sapienza University of Rome, Italy

Title to be defined*Xylem***Session 8 | Posters**

16:20 - 17:20

Environmental and economic assessment of the widespread use of anaerobic digestion techniques*R. Giurea*

Department of Industrial Engineering and Management, Lucian Blaga University of Sibiu, Romania

Emerging pollutants: the problem of microplastics*C. Battaglia*

Department of Biotechnology and Life Sciences, University of Insubria, Italy

Assessment and Optimization of Wastewater Treatment in Uganda*P. Castellani*

Department of Theoretical and Applied Sciences, University of Insubria, Italy

Emerging pollutants! Education and awareness of the plastic problem*A. Draghici*

Politehnica University of Timisoara, Management Department, Romania

Sludge gasification: an overview*G. Ionescu*

Department of Power Production and Usage, Polytechnic University of Bucharest, Romania

Title to be defined*M. Bullo*

Department of Civil, Environmental and Mechanical Engineering, University of Trento, Italy

Closing ceremony*Chair: I. Katsoyiannis, V. Torretta and E.C. Rada*

17:20 –17:50

Final comments and Closing