



TreatRec Final Conference

Interdisciplinary concepts for municipal wastewater treatment and resource recovery.

Girona, Catalonia, Spain

13 and 14 June 2018

ATKINS

Member of the SNC-Lavalin Group



Conference Program

Wednesday 13, June 2018

9.00 – 9.45 Registration

9.45 – 10.00 Welcome and Introduction

Session 1: Advanced technologies for improved removal of organic micropollutants

Chair: Ignasi Rodriguez-Roda

10.00 – 10.30 Christa S. McArdell, EAWAG, Switzerland

Implementation of the new Swiss water protection act to abate micropollutants.

10.30 – 11.00 Francisco Omil, University of Santiago de Compostela, Spain

Innovative configurations for sewage treatment addressing a cost-efficient macro and micropollutant removal

11.00 – 11.30 Jörg E. Drewes, Technical University of Munich, Garching, Germany

Development of a Resilient, Energy-efficient, Novel Biofiltration Treatment Concept for Water Recycling Applications

11.30 – 12.00 **Coffee break/Poster session**

Session 1: continuation

Chair: Francisco Omil

12.00 – 12.30 Alessio Fenu, Aquafin, Belgium

Bio-augmenting municipal MBRs to achieve micro-pollutants degradation: a possible way through the many obstacles

12.30 – 13.00 Luca Sbardela, Aquafin, Belgium (TreatRec fellow)

Advanced technologies for pharmaceuticals removal from WWTP secondary effluent: biological activated carbon filters vs AOPs

13.00 – 14.30 **Lunch**

Session 1: continuation

Chair: Wolfgang Gernjak

14.30 –15.00 Jelena Radjenovic, ICRA, Girona, Spain

Challenges and Opportunities for Electrochemical Processes as Next-Generation Technologies for the Treatment of Contaminated Water

15.00 – 15.30 Nevena Puač; Insitite of Physics, Belgrade, Serbia

Plasma degradation of organic water pollutants

15.30 – 16.00 Natalia Sergienko, ICRA, Girona, Spain

Removal and recovery of sulfide from wastewater with electrochemical oxidation on porous carbon-based electrodes

16.00 – 16.20 Susana Rodriguez-Couto, Ceit-IK4 and Universidad de Navarra, San Sebastian, Spain; IKERBASQUE, Bilbao, Spain

Green-catalyzed removal of phenolic compounds from aqueous solutions

16.20 – 16.40 Erdem Irtem, ICRA, Girona, Spain

Investigation of electrocatalytic denitrification on rGO modified porous electrodes

16.40 – 17.00 Nimmy Kovoov George, Wetsus, Leeuwarden, The Netherlands

Degrading micro pollutants with combination of UV and Vacuum UV radiation – novel approaches to modeling radiation propagation

21.00 Dinner

Thursday 14, June 2018

Session 2: Challenge of organic micropollutants in wastewater. Monitoring

Chair: Jelena Radjenovic

9.30 – 10.00 Yaroslav Verkh, ICRA, Girona, Spain (Treatrec fellow)

Tracking transformations of organic matter and micropollutants in wastewater

10.00 – 10.30 Maria Jose Farre, ICRA, Girona, Spain

Adapting analytical strategies based on mass spectrometry to understand, predict and reduce N-nitrosodimethylamine (NDMA) formation

10.30 – 10.50 Antoni Munne, Catalan Water Agency (ACA), Barcelona, Spain

Selecting contaminants for monitoring strategies in wastewater reuse to increase water availability in the Llobregat river (Catalonia). Bringing solutions to manage drought periods.

10.50 – 11.20 Poster session/Coffee break

Session 3: Recovery of resources (water, nutrients and energy)

Chair: Jan-Evert van Veldhoven

11.20 – 11.50 Jesus Colprim, Lequia, UdG, Girona, Spain

Sidestreams: what nutrients to recover and its impact on the whole urban WWTP

11.50 – 12.20 Bart Saerens, Aquafin, Belgium

P-recovery as struvite from digested sludge – experience from the full scale

12.20 – 12.50 Sara Johansson, UdG, Girona, Spain (Treatrec fellow)

Combining anammox and phosphorus precipitation for nutrient recovery from municipal wastewater

12.50 – 13.20 Juan Antonio Baeza, Universitat Autònoma de Barcelona, Spain

SMART-Plant: Scale-up of low-carbon footprint MAterial Recovery Techniques for upgrading existing wastewater treatment Plants

13.20 – 13.50 Frank Rogalla, FCC Aqualia, Madrid, Spain
Boosting circular economy: from wastewater to bioenergy

13.50 – 14.10 Matteo Spinelli, Department of Biotechnology, University of Verona, Italy
Comparative assessment between anaerobic and aerobic processes: operative strategies and final wastewater reuse

14.10 – 15.00 Lunch

Session 4: Challenge of societal, economic and technological changes affecting wastewater treatment and management

Chair: Joaquim Comas

15.00 – 15.30 Jan-Evert van Veldhoven, Waterboard de Dommel, The Netherlands
Future challenges in the wastewater sector

15.30 – 16.00 Peter Daldorph, ATKINS Limited, UK
A decision support system for multiple pollutants

16.00 – 16.30 Pau Juan Garcia, ATKINS, UK (Treatrec fellow)
Framework for Model-Based Resilience Assessment of Water Resource Recovery Facilities

16.30 – 17.00 Pau Gimeno, ICRA, Girona, Spain (Treatrec fellow)
Can Source control avoid the upgrade of WWTPs for the reduction of pharmaceuticals? The case of diclofenac and naproxen

17.00 End of Conference

Posters

1.

Photocatalytic degradation of nitrofurantoin by ag-doped TiO₂ nanoparticles

Lidija Ćurković^a, Davor Ljubas^b, Mirta Čizmić^c, Sandra Babić^c

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^b Department of Energy, Power Engineering and Environment, Faculty of Mechanical Engineering and Naval Architecture, University of Zagreb, Croatia

^c Department of Analytical Chemistry, Faculty of Chemical Engineering and Technology, University of Zagreb, Croatia

2.

Novel anode materials based on TiO₂ nanotube arrays for degradation of poly- and perfluoroalkyl substances

José M. Albahaca^a, Erdem Irtem^a, Jelena Radjenovic^{a,b}

^a Institut Català de Recerca de l'Aigua (ICRA), Girona, Spain

^b Catalan Institution for Research and Advanced Studies (ICREA), Barcelona, Spain

3.

Novel Ti/TiO₂-NTs/Sn₉₃Sb₅Bi₂O_x mesh anodes synthesis for electrochemical oxidation of x-ray agents

Marilia M S Pupo^{a,b}, Erdem Irtem^a, Jelena Radjenovic^{a,c}

^a Institut Català de Recerca de l'Aigua (ICRA), Girona, Spain

^b Universidade Tiradentes (UNIT), Aracaju, Brazil.

^c ICREA, Barcelona, Spain

4.

Potential of partial nitritation/Anammox biomass towards micropollutants biodegradation

Elissavet Kassotaki^a, Maite Pijuan^a, Ignasi Rodriguez-Roda^{a,b}, Adriano Joss^c and Gianluigi Buttiglieri^a

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^c Eawag, Swiss Federal Institute of Aquatic Science and Technology, Überland str. 133, 8600 Dübendorf, Switzerland

5.

Pharmaceutical removal in a wide range of water and wastewater matrices by means of UV, H₂O₂ AND UV/H₂O₂

A. Cibati^a, R. Gonzalez Olmos^b, I. Rodriguez-Roda^{a,c}, S. Rodriguez-Mozaz^a, G. Buttiglieri^a

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^c LEQUiA, Laboratory of Chemical and Environmental Engineering, University of Girona, Campus Montilivi, 17071 Girona, Spain

6.

Removal of metoprolol and metoprolol acid from hospital wastewater coupling activated sludge with UV/H₂O₂

Adrián Jaén-Gil^a, Gianluigi Buttiglieri^a, Aleix Benito^b, Rafael Gonzalez-Olmos^b, Damià Barceló^{a,c}, Sara Rodriguez-Mozaz^a

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^c Department of Environmental Chemistry, Institute of Environmental Assessment and Water Research (IDAEA), Spanish Council for Scientific Research (CSIC), Jordi Girona 18-26, 08034 Barcelona, Spain

7.

Fate of pharmaceuticals and antibiotic resistance genes in an anaerobic digestion-reverse osmosis livestock waste treatment plant: a successful case study for nutrient recovery and risk mitigation

Meritxell Gros^a, Elisabet Martí^b, Mercè Boy-Roura^{a,b}, Itziar Lekunberri^a, Joan Colón^b, José Luis Balcázar^a, Carles M. Borrego^{a,c}, Sergio Ponsá^b, Mira Petrovic^{a,d}

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