



INTERNATIONAL CONFERENCE

INTERNATIONAL OZONE ASSOCIATION
European African Asian Australasian Group

EA3G2018

5 – 7 September 2018
Lausanne, Switzerland

Ozone and Advanced Oxidation

**Solutions for Emerging Pollutants of Concern to
the Water and the Environment**

www.ioa-ea3g.org/ea3g2018

ADVANCE PROGRAMME

Wednesday 5 September

8h00-8h45	Registration	
8h45-9h00	Welcome and opening address	
9h00-11h00	Session 1. Introductory Keynote lectures	
9h00	Enhanced municipal wastewater treatment for micropollutant abatement by ozone <i>Urs von Gunten (Switzerland)</i>	Exhibition
9h30	Global Water Crisis; Contaminants and Shortages, a Shared Responsibility <i>Saad Y. Jasim (Canada)</i>	
10h00	A tour through the European Regulations for ozone treatment <i>Bernhard Paolini, Tim Pühmeier, Jörg Mielcke, Matthias Rothe, Matthias Hoffmann, Jaak Ryckeboer (Switzerland, Germany)</i>	
10h30	Mastering ozonation fundamentals to ensure the micropollutant removal and control byproducts release <i>Sylvie Balg, Michel Roustan (France)</i>	
11h00-11h30	Coffee break, poster session and exhibition	
11h30-12h50	Session 2. Fundamentals	
11h30-11h50	Comparison of O₃, ferrate, ClO₂, and permanganate pre-treatment on NOM's characteristics and formation of DBPs <i>V. Rougé, S. Allard, U. von Gunten, J.P. Croué (Australia, Switzerland)</i>	Exhibition
11h50-12h10	Quantification of electron-donating capacities for the assessment of oxidative water treatment <i>Linda Önnby, Elisabeth Salhi, Urs von Gunten (Switzerland, Sweden)</i>	
12h10-12h30	Microbial Counts and Antibiotic Resistances during Conventional Wastewater Treatment and Wastewater Ozonation <i>K. Kirchner, I. Brückner, K. Klaer, J. Pinnekamp, M. A. Rosenbaum (Germany)</i>	
12h30-14h00	Lunch	
14h00-15h40	Session 3. Fundamentals (cont'd)	
14h00-14h20	Virus inactivation by ozone natural matrices: potential proxies for viral inactivation <i>Camille Wolf, Annalisa Pavese, Urs von Gunten, Tamar Kohn (Switzerland)</i>	Exhibition
14h20-14h40	Determining viral inactivation after ozone treatment using a novel transfection-based most probable number assay <i>Jason Torrey, Urs von Gunten, Tamar Kohn (Switzerland)</i>	
14h40-15h00	Remediation of oil sands process-affected water using ozone assisted processes <i>Mohamed Meshref and Mohamed Gamal El-Din (Canada)</i>	
15h00-15h20	A review on the research and application of ozone catalytic oxidation <i>Pingxin Liu, Jun Ma, Yueming Ren (PR China)</i>	
15h20-15h40	Solar simulated radiation assisted photolytic ozonation for the removal of aqueous anthropogenic pollutants <i>Rafael Solís, Javier Rivas, Olga Gimeno, Fernando Beltrán (Spain)</i>	Exhibition
15h40-16h00	Electrochemical-Nb/BDD process for Norfloxacin degradation <i>Salatiel Wohlmuth da Silva, Daniela Eduarda Schneider, Marco Antônio Siqueira Rodrigues, Andréa Moura Bernardes (Brazil)</i>	
16h00-16h30	Coffee break, poster session and exhibition	

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16h30-17h30 Session 4. Fundamentals (cont'd)

16h30-16h50	Development of an electro-Fenton process at near-neutral pH: using a strong complexing agent Fe-ethylenedi-amine-N, N'-disuccinic acid (Fe-EDDS) in an electrochemical reactor with a fixed bed three-dimensional cathode for the degradation of a persistent pollutants in the water <i>Lionel Domergue, Nicolas Cimetière, Sylvain Giraudet, Didier Hauchard (France)</i>
16h50-17h10	Degradation of iopromide by the UV-chlorine process <i>Cécilia Falantin, Justine Criquet, Sébastien Allard (Australia, France)</i>
17h10-17h30	Photo-induced persulfate oxidation of emerging micropollutants in water matrices <i>Niina Dulova, Eneliis Kattel, Balpreet Kaur, Marina Trapido (Estonia)</i>

17h30-18h30 Session 5. Poster session

Fundamentals

	Reaction of aliphatic amines with ozone <i>Sungeun Lim, Christa S. McArdell, Urs von Gunten (Switzerland)</i>
	Profilomic, large scale screening of emerging pollutants and far beyond <i>David Halter, Maïte Sarter, Fereshteh Rouholahnejad (France)</i>
	Comparison of different advanced oxidation processes used to the decomposition of organic pollutants in real thermal wastewater <i>Ákos Fazekas, Gábor Veréb, Szabolcs Kertész, Sándor Beszédes, Cecilia Hodúr, Zsuzsanna László (Hungary)</i>
	On the mechanism and phytotoxicity evolution during solar photolytic enhanced ozonation of tritosulfuron in water <i>Rafael Solís, Javier Rivas, Olga Gimeno, Fernando Beltrán (Spain)</i>
	Mechanisms of reaction of ozone and ozone-UV with 2,5-dichlorophenol <i>Jacqueline C. Alexander, Cirilo García-Martínez, Clementina R. Ramírez-Cortina, Isaías Hernández-Pérez (Mexico)</i>
	Fluorescence spectroscopy as an usefull tool to gain further insight on phenolic compounds degradation by O₃ and O₃/UVA-Vis combination <i>Sara García-Ballesteros, Paula García-Negueroles, Rafael Vicente, Margarita Mora, Ana M. Amat, Antonio Arques (Spain)</i>
	Degradation of 8 pollutants commonly found in food processing effluents by advanced oxidation processes: O₃ and O₃/UVA-Vis <i>Paula García-Negueroles, Sara García-Ballesteros, María López, R.F. Vercher, Antonio Arques, Ana María Amat (Spain)</i>
	Metronidazole mineralization by the coupling of an electro-Fenton pretreatment and a biological process: Optimization process and biodegradation improvement <i>Arwa Aboudalle, Lionel Domergue, Florence Fourcade, Hayet Djelal, Abdeltif Amrane (France)</i>
	Simultaneous dosing of ozone and hydrogen peroxide for advanced oxidation treatment of municipal wastewater effluents <i>Alberto Cruz-Alcalde, Santiago Esplugas, Carme Sans (Spain)</i>
	Protection mechanism of rubbers from ozone attack <i>Franco Cataldo (Italy)</i>
	Assessment of ozone and solar-light based AOPs in the removal of NOM and DBPs formation potential <i>Ana Rey, Eva-María Rodríguez, Rafael Solís, Fernando Beltrán (Spain)</i>
	Electrochemical generation of ozone over nickel, niobium doped tin oxide electrode <i>Matte Venkata Sivaiah, Abirami Devadas, How Ghee Ang (Singapore)</i>
	Heterogeneous catalytic ozonation of diclofenac using Fe₃O₄/SiO₂/Co₃O₄ <i>Li Wei Lu, Cheng Nan Chang, Yen Ping Peng (Taiwan)</i>
	Degradation of two antihypertensives by hydroxyl and sulfate radicals <i>Maria Clara Starling, Patricio Patterson, Annaïg Le Person, Camila Costa de Amorim, Justine Criquet (Brazil, France)</i>
	The use of a medical ozonizer for the purpose of inducing DNA damage for the modification of comet assay technique <i>Tatiana Shcherbatyuk, Irina Chernigina, Andrew Gapeyev, Viktor Selemir (Russia)</i>
	DNA damage in rat blood leukocytes after ozone-photodynamic therapy of experimental malignant neoplasms <i>Tatiana Shcherbatyuk, Irina Chernigina, Eugenia Plekhanova, Andrew Gapeyev (Russia)</i>
	Ozone in nuclear physics detectors at accelerators <i>Kramarenko V., Tkachenko I., Tkachenko S. (Russia)</i>
	Comparative study of conventional and advanced disinfection processes applied to urban wastewaters <i>Pilar Valero, Rosa Mosteo, José L. Ovelleiro, Maria P. Ormad (Spain)</i>
	Researches on active and passive monitoring of the aeromicroflora in bakery units and the results obtained from the use of the GF 3XO - AW8 ozone generator <i>Popa Ioan Eugen, Puchianu Gheorghe, Enache Dorin Valter, Necula Valentin (Romania)</i>

Exhibition

Exhibition

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17h30-18h30 Session 5. Poster session (cont'd)

Fundamentals

Aldehyde abatement based on ozonation in homogenous gas phase

Leticia Vitola Pasetto, Frédéric Violleau, Romain Richard, Jean-Stéphane Pic, Valérie Simon, Marie-Hélène Manero (France)

Combination of O₃/H₂O₂ and UV to assess elimination of alachlor in a secondary wastewater effluent

Ze Liu, Stijn Van Hulle (Belgium)

Process development

Treating Urban Micropollutants and Pharmaceuticals in wastewaters: new process involving synergetic biological and chemical oxidation using ozone

Bruno Domenjoud, Adriana Gonzalez Ospina, Agneta Kiss, Alexandre Bergé, Emmanuelle Vulliet, M. Marce, S. Esplugas, Sylvie Bony, Alain Devaux, Adriana Wigh, Sylvie Baig (France, Spain)

Hard COD Removal in Textile Dye Effluent with a 2 Stage Treatment Applying Ozone Followed by Peroxone

Bruno Heiniger, Laurent De Franceschi (Switzerland)

Cyanide recovery from thiocyanate by ozonation of mining effluent

Bruno Heiniger, Laurent De Franceschi, Amanda Murillo (Switzerland)

Process Engineering

Some questions of safety in the use of ozone generators in medical practice

Tetiana Barkhotkina, Yevgen Sokol, Roman Tomashevskiy, Mykola Makhonin (Ukraine)

Effects of pre-ozonation on ultrafiltration of oil-in-water emulsions using different hydrophilic and hydrophobic membranes

Gábor Veréb, Júlia Végh, Szabolcs Kertész, Sándor Beszédes, Cecilia Hodúr, Zsuzsanna László (Hungary)

Thermal Vent Ozone Destructor Technology using Heat Recovery Process Improves Resistance to Hard Process and Operating Conditions

Christopher Huynh, Walter Uttinger, Elodie Aubin, Hanspeter Fellmann (Switzerland)

Catalytic protection against ozone of drift detectors of the atlas installation of the large hadron collider

Ткаченко С.Н., Крамаренко В.А., Ткаченко И.С., Голосман Е., Лушин В.В. (Russia)

20h00 Conference Dinner

Thursday 6 September

8h30-10h30 Session 6. Process development

8h30-8h50 **A practical approach for the control of micropollutants removal during wastewater ozonation using kinetic and water quality parameters**
Alberto Cruz-Alcalde, Santiago Esplugas, Carme Sans (Spain)

8h50-9h10 **Ozonation performance for micropollutants removal from source-separated urine**
Hui Deng, Christelle Guigui, Jean-Stéphane Pic (France)

9h10-9h30 **Successful landfill leachate wastewater treatment using the sequence of ozonation, adsorption on charcoal and photo-ozonolysis**
Franco Cataldo (Italy)

9h30-9h50 **UV/H₂O₂ before biological treatment in drinking water: effects on the removal of micropollutants and biodegradability**
Robin Wünsch, David Cayon, Fabienne Eugster, Julia Plattner, Jens Gebhardt, Richard Wülser, Urs von Gunten, Thomas Wintgens (Switzerland, Germany)

9h50-10h10 **Ozone, O₃ Plus AOP: an Optimized Treatment Line for COD & TOC Removal: Wanhua**
Liu Fan, Laurent de Franceschi, Stéphanie Foucher, Bruno Heiniger, Cindy Ji, Michael Wang, Katia Wasiak, Jesse Yu (PR. China, Switzerland)

10h10-10h30 **BIOTECH PROJECT: Hospital effluents treatment by oxidation with ozone and catalytic ozonation processes - elimination of biocides**
F. Pontlevoy, F. Lasek, N Karpel Vel Leitner, L. Blanchier, S. Ayraud Thevenot, O. Castel, C. Printemps-Vacquier, P. Plaire, C. Pagotto, H. Reisser, T. Trotouin, S. Cormery, N. Della-Valle, S. Bouchonnet, S. Bourcier, E. Nicol, S. Vujovic, G. Rauwel, M. Deborde (France)

10h30-11h00 Coffee break, poster session and exhibition

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Thursday 6 September

11h30-11h50 Session 7. Process engineering

11h00-11h20	Construction of a new treatment chain at the Saint-Sulpice drinking water treatment plant: ozonation and advanced oxydation pilot tests <i>Christophe Mechouk, Alexandra Hauret, Laura Piccinini, Fereidoun Khajehnouri (Switzerland)</i>
11h20-11h40	AOP for removal of 1,4 dioxane from Los Angeles groundwater <i>Michael Maxwell, Christine Cotton, Nicole Blute, Martin Hendrie, Kurt Wells, Todd Rother (USA)</i>
11h40-12h00	Removal of metaldehyde from a DOC and bromide rich surface water by means of the peroxone process <i>Liesbeth Verdickt, Nikki Janssens (Belgium)</i>
12h00-12h20	Foam fractionation and ozone in modern aquaculture systems: valuable tools for clear water production and farm management <i>Jaime Orellana, Bert Wecker, Uwe Waller (Germany)</i>
12h20-12h40	Degradation of plant protection products from wastewater with advanced oxidation processes (AOP) <i>Agnieszka Mos-Hummel, Klaus Nonnenmacher (Germany)</i>

12h40-14h00 Lunch

14h00-16h00 Session 8. Process engineering (cont'd)

14h00-14h20	Micropollutants treatment at the vidy WWTP: feasibility of implementing ozonation with regard to by-products formation <i>Christophe Mechouk, Alexandra Hauret, Laura Piccinini, Fadi Kadri, Fereidoun Khajehnouri (Switzerland)</i>
14h20-14h40	Micropollutant removal by ozonation at Sophia Antipolis wastewater facility: assessment of performances and reduction of toxicity <i>Y. Penru, N. Creusot, J. Couteau, C. Miège, A. Guillon, M. Esperanza, M. Masson, A. Roussel-Galle, M. Coquery, S. Martin Ruel, S. Baig, J.M. Choubert, S. Aït-Aïssa (France)</i>
14h40-15h00	Closing the water cycle applying suspended ion exchange and ozonation for pharmaceutical control <i>Bram Martijn, Dan Farley, George Zoutberg, Jim Malley, Joop Kruithof (The Netherlands)</i>
15h00-15h20	Micropollutant removal from WWTP effluent using the O₃-step filter <i>Coen de Jong, Tsz Kit Liu, Arjen Van Nieuwenhuijzen, René van der Aa, Manon Bechger, Jan Peter van der Hoek (The Netherlands)</i>
15h20-15h40	Coupling ozone and activated carbon adsorption for organic micropollutants removal in advanced wastewater treatment <i>Guillossou Ronan, Gasperi Johnny, Le Roux Julien, Mailler Romain, Brosillon Stephan, Vulliet Emmanuelle, Morlay Catherine, Nauleau Fabrice, Rocher Vincent (France)</i>
15h40-16h00	UVA_{254nm} based ozone dosage control with one in –situ measurement sensor <i>Vignesh Thiyagarajan, Achim Ried, Michael Stapf, Jan Schuetz (Germany)</i>

16h00-16h30 Coffee break, poster session and exhibition

16h30-17h40 Session 9. Process engineering (cont'd)

16h30-16h50	Where to go next to advance the design and operation of ozonation and advanced oxidation of secondary effluent and surface water <i>Wim Audenaert, Achim Ried (Belgium, Germany)</i>
16h50-17h10	Diffusion of Gas with Bubble Column in fully Turbulent Flow <i>Pierre-André Liechti, Robert Hausler (Switzerland, Canada)</i>
17h10-17h30	How new generator technology can contribute to expanding ozone applications <i>Elodie Aubin, Luca Ramoino, Walter Uttinger, Hanspeter Fellmann, Christopher Huynh (Switzerland)</i>
17h30-17h50	Numerical simulation of the efficiency of full-scale ozone contactor <i>Elamine Gheffari, Sylvie Baig, Daniel Pierrat (France)</i>

17h50-18h20 Closing session and Winners announced

Friday 7 September

Full day **Technical tour with lunch**
Drinking Water Plant of the Bret Lake
Lunch

Exhibition

Exhibition

Exhibition