



**INTERNATIONAL  
OZONE  
ASSOCIATION**

Europe Africa Asia Australasia Group



# INTERNATIONAL CONFERENCE

Ozone and Advanced Oxidation

Science, technologies and applications for a better world

EA3G2022

28 - 30 November 2022

Toulouse, France

<http://www.ioa-ea3g.org/ea3g2022>

## PROGRAMME

### Monday 28 November

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| 7h30-9h00  | <b>Registration</b>   |            |
| 9h00-10h30   | <b>Welcome and opening ceremony</b><br>Sylvie Baig, IOA-EA <sub>3</sub> G President (France)<br><b>Keynote lectures: climate change and water management, opportunities</b>   |            |
| 10h30-11h00  | <b>Coffee break, poster exhibition</b>  |            |
| 11h00-13h00  | <b>Session 1. Fundamentals and engineering aspects</b>  |            |
| 11h00-11h20  | <b>1.1. Evaluation of the reactivity of ozone and hydroxyl radical with several bisphenol analogues by competition kinetics</b><br>Oriol Porcar-Santos, Alberto Cruz-Alcalde, Carme Sans (Spain)  | Exhibition |
| 11h20-11h40  | <b>1.2. Comparative study of chlorination and ozonation of fluorinated pesticides in water: Kinetics, transformation products and toxicity assessment</b><br>R.B.M. Diakabou Oby, H. Carreyre, J.M. Ouamba, S. Thibaudeau, H. Gallard (France, Congo)   |            |
| 11h40-12h00  | <b>1.3. Ozone diffusion through hollow fiber membrane contactor</b><br>Schmitt Alice, Mendret Julie, Brosillon Stephan (France)   |            |
| 12h00-12h20  | <b>1.4. Advanced oxidation with dissolved ozone and hydrodynamic cavitation for micropollutant removal</b><br>N. Matzke, M. Kolkmann, J. Mante, M. Meier, S. F. Reinecke, Uwe Hampel (Germany, France)  |            |
| 12h20-12h40  | <b>1.5. Reduced-Order Modelling Approach Based on Computational Fluid Dynamics to Predict Gas Hold-up in Micro/Meso Structured Static Mixers</b><br>P. H. Marrocos, I. S. Fernandes, M. M. Pituco, R. J. Santos, V. J. P. Vilar (Portugal)  |            |
| 12h40-13h00  | <b>1.6. Towards establishing standard ozonation batch test method through combining lab experiments and CFD-Amozone modelling</b><br>M. Yang, G. Bellandi, R. Muoio, K. Guerrero, A. B. Sanchez, A. Börgers, R. Schemen, P. Van Dijk, P. Vlasschaert, U. Rehman, A. Wieland, J. Türk, W. Audenaert (Belgium, The Netherlands) |            |
| 13h00-14h30  | <b>Lunch</b>  |            |
| 14h30-16h00  | <b>Session 2. Poster introductions &amp; Exhibition</b>   |            |
| Advanced Oxidation Processes   |   |            |
| <b>2.1. Insights into the catalytic ozonation over manganese oxide composite: Cooperative structure, degradation performance, and synergistic mechanisms</b><br>Jing Liu, Xiangjuan Yuan, Carmen Sans (Spain, China) |   |            |



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| <p><b>2.2. Removal of aqueous Nitrobenzene by Photocatalytic-ozonation process on Activated carbon under solar radiation: Catalyst characterization and kinetic study</b><br/>Abdelkader Meriem, Guiza Monia, Francisco Javier Rivas Toledo, Abdelmottaleb Ouederni (Tunisia, Spain)</p> | <b>Exhibition</b> |
| <p><b>2.3. Resistance of polymeric ultrafiltration membranes exposed to ozone produced by diamond electrodes</b><br/>J. Gäbler, S. Glass, V. Filiz, F. Neumann (Germany)</p>   |                   |
| <p><b>2.4. Electrochemical production of persulfate with boron-doped diamond electrodes</b><br/>M. P. Castro, M. A. Montiel, I. F. Mena, M. A. Rodrigo, J. Gäbler, M. Höfer, M. Armgardt, L. Schäfer (Spain, Germany)</p>  |                   |
| <p><b>2.5. Ozone assisted TiO<sub>2</sub> nanotube arrays for the removal of antibiotic ciprofloxacin and microbial contamination from model water</b><br/>V. Abromaitis, D. Martuzevicius (Lithuania)</p>   |                   |
| <p>Agri-food applications</p>  |                   |
| <p><b>2.6. Novel materials with antimicrobial and antifungal properties obtained by ozonation of cyclodextrins: from synthesis to practical applications</b><br/>E. Haddad, M. Pagès, Y. Coppel, R. Sanchez, F. Violleau, M.-H. Manero, R. Richard, J.-P. Torr  * (France)</p>           |                   |
| <p><b>2.7. Novel materials with antimicrobial and antifungal properties obtained by ozonation of cyclodextrins: from synthesis to practical applications</b><br/>E. Haddad, M. Pagès, Y. Coppel, R. Sanchez, F. Violleau, M.-H. Manero, R. Richard, J.-P. Torr  * (France)</p>           |                   |
| <p>Fundamentals and engineering aspects</p>  |                   |
| <p><b>2.8. Degradation of Three Anti-Cancer Drugs in Water: Determination of Kinetic Parameters</b><br/>S. Zimmermann, E. Borowska, S. Sohrabi, H. Horn (Germany)</p>  |                   |
| <p><b>2.9. Gas-liquid pressure drop of downward flows in NETmix static mixer: experimental validation of computational fluid dynamics model</b><br/>P. H. Marrocos, I. S. Fernandes, M. M. Pituco, R. J. Santos, V. J. P. Vilar (Portugal)</p>   |                   |
| <p><b>2.10. NETmix Technology as Ozone Gas Injection System: Assessment of the Gas-Liquid Mass Transfer</b><br/>M.M. Pituco, P.H. Marrocos, M.M. Dias, J.C.B Lopes, R.J. Santos, F.C. Moreira, V.J.P. Vilar (Portugal)</p>   |                   |
| <p><b>2.11. Enhancement of activated sludge system using micro nano bubbles for sustainable wastewater treatment</b><br/>Mohamed Mohamed, Marwa Sakr, Mohamed Kizhisseri, Munjed Maraqa, Mohamed Hamouda (United Arab Emirates)</p>  |                   |
| <p><b>2.12. Spraying ozonated water: mass transfer characterization from the atomizing liquid film to the cloud of droplets</b><br/>Axel Canado, Marine Tournois, Claude Lemen, Nicolas Dietrich, Marielle Pages-Homs, Fr  d  ric Violleau, Gilles H  brard (France)</p>                 |                   |
| <p><b>Visit of poster exhibition</b></p>   |                   |
| <p><b>16h00-16h30 Coffee break, poster session and exhibition</b></p>  |                   |
| <p><b>16h30-19h00 Session 3. Agri-food applications</b></p>  |                   |
| <p>16h30-16H50 <b>3.1. Wastewater Reuse for agriculture - Smart Control Concepts</b><br/>A. Ried (Germany)</p>   | <b>Exhibition</b> |
| <p>16h50-17h10 <b>3.2. Ozonated water to treat downy and powdery mildews in agriculture</b><br/>Axel Canado, Marielle Pages-Homs, Wilfried Remus-Borel, Gilles H  brard, Fr  d  ric Violleau (France)</p>  |                   |
| <p>17h10-17h30 <b>3.3. Ozone Gas Treatment: an alternative solution to preserve the sanitary quality of young grapevine plants</b><br/>M. Pages, C. Berger, P.D. Tourette, F. Violleau (France)</p>  |                   |
| <p>17h30-17H50 <b>3.4. Quality and mite growth on pecorino cheese stored in ozonated ripening rooms</b><br/>C. Carboni, C. Grasso, R. Forniti, M. Lembo, V. Eramo, R. Botondi (Italy)</p>  |                   |



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| 17h50-18h10 | <b>3.5. A mobile tool for post-harvest treatment and preservation of bananas using ozone</b><br>Cyndel Berger, Marielle Pages, Léa Volmerange, Pierre Brat, Olivier Hubert, Joel Grabulos, Victoria Bancal, Alain Normand, Aurélien Pugeaux, Luc De Lapeyre De Bellaire, Sylvain Gerbaud, Frédéric Violleau (France) |
| 18h10-19h00 | <b>Round table discussion on Regulatory aspects</b>  |
| 19h00       | <b>Cocktail</b>  |

## Tuesday 29 November

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| <b>8h30-10h30</b>  | <b>Session 4. Advance Oxidation Processes</b>   |
| 8h30-8h50          | <b>4.1. Photocatalytic degradation of Paracetamol using Olive stones Activated Carbon</b><br>Dhibi Houda, Guiza Monia, Francisco Javier Rivas Toledo, Abdelmottaleb Ouederni (Tunisia, Spain)   |
| 8h50-9h10          | <b>4.2. Testing <math>\alpha</math>-MnO<sub>2</sub>-coated sand for catalytic hydroxyl radical formation with various oxidants</b><br>E. Bein, I. Zucker, Y. Yechezkel, J.E. Drewes, U. Hübner (Germany, Israel)  |
| 9h10-9h30          | <b>4.3. Kinetic modelling assisted optimization of the peroxone (O<sub>3</sub>/H<sub>2</sub>O<sub>2</sub>) water treatment process</b><br>M. Mortazavi, S. Garg, T.D. Waite (Australia)   |
| 9h30-9h50          | <b>4.4. Advanced Ozone Oxidation for efficient Sodium Dodecyl Sulfate Degradation</b><br>A.A.S. Gallab, C. Tizaoui (UK, Egypt)  |
| 9h50-10h10         | <b>4.5. Oxygen plasma modification of carbon felt electrodes for enhanced the electrochemical degradation of water organic pollutants</b><br>Pawel Jakobczyk, Mattia Pierpaoli, Grzegorz Skowierzak, Iwona Kaczmarzyk, Małgorzata Nadolska, Anna Wcisło, Robert Bogdanowicz, Jacek Ryl (Poland) |
| 10h10-10h30        | <b>4.6. Microwave plasma-enhanced chemical vapor deposition-assisted synthesis of carbon nanoarchitectures for the advanced oxidation of water pollutants</b><br>Mattia Pierpaoli, Pawel Jakóbczyk, Aneta Łuczkiwicz, Sylwia Fudala-Książek, Robert Bogdanowicz (Poland)                        |
| <b>10h30-11h00</b> | <b>Coffee break, poster exhibition</b>  |
| <b>11h00-12h30</b> | <b>Session 5. Workshop Post Covid-19</b>  |
| <b>12h30-14h30</b> | <b>Lunch</b>  |
| <b>14h30-16h30</b> | <b>Session 6. Micropollutants</b>   |
| 14h30-14h50        | <b>6.1. Simultaneous Removal of Gemfibrozil and Ibuprofen in the Presence of Microcystis aeruginosa in Treated Sewage Effluent using Ozone and Ozone-Hydrogen Peroxide</b><br>Jayaprakash Saththasivam, Hajar Farzaneh, Guhankumar Ponnusamy (Qatar)  |
| 14h50-15h10        | <b>6.2. Ozone diffusion by hollow fiber membrane contactor for pharmaceutical removal and bromate minimization</b><br>Schmitt Alice, Mendret Julie, Brosillon Stephan (France)  |
| 15h10-15h30        | <b>6.3. Pharmaceutical degradation and bromate control by ozone based treatment for WWTP effluent reuse</b><br>M. Spruijt, A.J. Martijn, R. Koolen, J.C. Kruithof (The Netherlands)   |
| 15h30-15h50        | <b>6.4. Bromate in Ozone Treatment - a new avenue</b><br>T. Puehmeier, I. Simões, J. Ryckeboer, R. Gyssels, A. Wieland, J. Mielcke, H. Stapel, M. Hoffmann, M. Rothe, B. Paolini (Germany, Switzerland)   |
| 15h50-16h10        | <b>6.5. A bromate-free solution to remove micropollutants</b><br>Laurent De Franceschi, Bruno Heiniger, Amanda Murillo, Ludwig Dinkloh (Switzerland, Germany)   |

Exhibition



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| 16h10-16h30                  | <b>6.6. CECs in drinking water treatment plants: how ozonation affects activated carbon adsorption</b><br>B. Cantoni, J. Ianes, B. Bertolo, S. Ziccardi, F. Maffini, M. Antonelli (Italy)  | Exhibition |
| 16h30-17h00                  | <b>Coffee break, poster session and exhibition</b>   |            |
| 17h00-18h00                  | <b>Session 7. Workshop PFAS</b>  |            |
|                              | <b>7.1. Treatment technologies &amp; concepts to manage PFAS in the water cycle – a Review</b><br>A. Ried (Germany)  | Exhibition |
|                              | <b>7.2. Does ozonation enhance activated carbon adsorption of PFAS in textile wastewater?</b><br>B. Cantoni, G. Bergna, E. Baldini, M. Antonelli (Italy)   |            |
|                              | <b>Discussion</b>  |            |
| 20h00                        | <b>Conference Dinner - Restaurant boat L'Occitania</b>   |            |
| <b>Wednesday 30 November</b> |  |            |
| 8h30h10h20                   | <b>Session 8. Full scale studies – Part 1</b>  | Exhibition |
| 8h30-8h50                    | <b>8.1. Prediction of ozone dosing in Full-scale Drinking Water Treatment Plant using Deep learning</b><br>M. Djeddou, A. Hellal, I. Loukam, A.I. Hameed (Algeria, Norway)   |            |
| 8h50-9h10                    | <b>8.2. Ozone strong water dosing as optimized ozonation process for micropollutants reduction in wastewater treatment plants</b><br>Kevin Guerrero-Granados, Jan Mante, Midhun Joy, Markus Meier, Andrea Boergers, Jochen Tuerk (Germany, France)   |            |
| 9h10-9h30                    | <b>8.3. Assessment of biological post-treatment procedures for degradation of transformation products from wastewater ozonation</b><br>J. Tuerk, A. Boergers, K. Guerrero-Granados, R. Cunha (Germany)   | Exhibition |
| 9h30-9h50                    | <b>8.4. Techno-economics of disinfection using ozone and chlorine gas in India-dependence on water treatment plant capacity</b><br>Vishal Waindeskar, Rajesh Admane, Sunil Shirallu, Nageswara Rao Neti (India)  |            |
| 10h00-10h30                  | <b>Coffee break, poster session and exhibition</b>   |            |
| 10h30-11h30                  | <b>Session 9. Full scale studies – Part 2</b>  | Exhibition |
| 10h30-10h50                  | <b>9.1. The Wervershoof WWTP case: towards real-time prediction of micropollutant removal and bromate formation with a digital twin for ozonation</b><br>R. Muoio, G. Bellandi, M. Hoekstra, S. Duchi, M. Spruijt, J. Versteegh, U. Rehman, W. Audenaert (Belgium, The Netherlands)            |            |
| 10h50-11h10                  | <b>9.2. Towards online digital twin of two full-scale ozonation plants for micropollutant removal: minimize piloting efforts and improve decision making in design phase</b><br>G. Bellandi, R. Muoio, R. Schemen, P. Van Dijk, S. Weijers, U. Rehman, W. Audenaert (Belgium, The Netherlands) |            |
| 11h10-11h30                  | <b>9.3. Successful prediction of ozonation performances for microcontaminants removal, disinfection and by-products formation in wastewaters</b><br>S. Baig, M. Roustan (France)   | Exhibition |
| 11h30-12h00                  | <b>Closing session and Award Ceremony</b>  |            |
| 12h00-13h00                  | <b>Lunch</b>   |            |
| 13h00-18h00                  | <b>Technical visit - Rabastens: Drinking water plant &amp; Wine cellar</b>   |            |

