



The International Ozone Association  
is pleased to invite you to take part in the

26<sup>th</sup> World Congress & Exhibition

2 - 7 July 2023, Milan, Italy

Ozone and Advanced Oxidation  
Leading-edge science and technologies



POLITECNICO  
MILANO 1863

### GENERAL PROGRAMME

Hour	July 2	July 3	July 4	July 5	July 6	July 7
7h00		Registration				
8h30 - 10h30		S1 Opening	S9 S10 S11	S21 S22 S23		
10h30 - 11h00		Break	IOA General Assembly	Break	Break	
11h00 - 12h30		S1 Introduction	E	S12 S13 S14	S24 S25 S26	
12h30 - 14h00		Lunch		Lunch	Lunch	
14h00 - 16h00	Stand assembly	S2 S3 S4	E	S15 S16 S17	S27 S28 S29	T1
16h00 - 16h30	Registration	Break	E	Break	Break	T2
16h30 - 19h00	Poster panels	S5 S6 S7	C1	S18 S19 S20	S30 Closing and Awards Ceremony	
	19h00 Welcome reception				20h00 Congress dinner	

With **S: Scientific Session**; **E: Exhibition**; **C: Cultural tour**; **T: Technical tour**

#### Sessions

- |   |   |   |
|---|---|---|
| <b>S1</b> Opening                       | <b>S11</b> Ozone in Medicine – Part 1                 | <b>S21</b> Ozone reactions – Part 4                   |
| <b>S2</b> Ozone for Agrifood - Part 1   | <b>S12</b> Workshop / Sidestream injection of ozone   | <b>S22</b> Advanced treatment of wastewaters – Part 3 |
| <b>S3</b> Ozone reactions – Part 1      | <b>S13</b> Engineering aspects – Part 3               | <b>S23</b> Ozone in Medicine – Part 5 / Workshop      |
| <b>S4</b> Engineering aspects – Part 1  | <b>S14</b> Ozone in Medicine – Part 2                 | <b>S24</b> Workshop / The energy vectors              |
| <b>S5</b> Ozone for Agrifood – Part 2   | <b>S15</b> AOPs - Part 2                              | <b>S25</b> Advanced treatment of wastewaters – Part 4 |
| <b>S6</b> Ozone reactions – Part 2      | <b>S16</b> Advanced treatment of wastewaters – Part 1 | <b>S26</b> Ozone in Medicine – Part 6                 |
| <b>S7</b> Engineering aspects – Part 2  | <b>S17</b> Ozone in Medicine – Part 3                 | <b>S27</b> Ozone and sludge                           |
| <b>S8</b> Workshop / Young Ozone People | <b>S18</b> AOPs – Part 3                              | <b>S28</b> Advanced treatment of wastewaters – Part 5 |
| <b>S9</b> Ozone reactions – Part 3      | <b>S19</b> Advanced treatment of wastewaters- Part 2  | <b>S29</b> Workshop / For a relevant use of ozone     |
| <b>S10</b> AOPs - Part 1                | <b>S20</b> Ozone in Medicine – Part 4                 | <b>S30</b> Closing - Awards ceremony                  |



## SCIENTIFIC AND TECHNICAL PROGRAMME

### Monday, 3 July

#### Session 1. Plenary session. Opening

9:00		<p>Opening addresses by the Presidents of IOA, of Politecnico di Milano Chair, of Region of Lombardia  <b>Keynote lectures by:</b>            01.1. Andrea Rubini, Director of Operations, Water Europe            01.2. Veronica Manfredi (CT) – Director for Zero Pollution, DG Environment, European Commission            01.3. Luca Lucentini (LL) – Director of the Internal Water Hygiene Department of the Italian Istituto Superiore di Sanità – Italy</p> <p><b>Exhibition</b></p>
10:30		IOA General Assembly
10:30		Break
		Congress Introduction
11:00	RT	<p><b>01.1. Round Table - Ozone in the management of the integrated water cycle</b>  <i>C. Topalli (AquaItalia), D. Renato (Utilitalia), G. Tartari (ClusterLe2C) (Italy)</i></p>
12:30		Lunch

#### Session 2. Ozone for Agrifood - Part 1

Hour	Presentation	
14:00	LP	<p><b>02.1. Processing of wheat non-starch polysaccharides for the optimization of their functional and nutritional characteristics</b>  <i>W. Sztupecki, L. Rhazi, F. Dépeint, T. Aussenac (France)</i></p>
14:30	LP	<p><b>02.2. Use of ozone in pasta production environments for sanitizing the air and reducing the risk of mold growth.</b>  <i>D. Vallauri, C. Carboni (Italy)</i></p>
15:00	LP	<p><b>02.3. Microbial and fungal growth control and evaluation of quality parameters during ripening of Toma Piemontese PDO cheese treated with gaseous ozone</b>  <i>V. Eramo, C. Carboni, M. Lembo, R. Forniti, R. Botondi (Italy)</i></p>
15:30	LP	<p><b>02.4. Effect of ozonated atmosphere on postharvest decay of plum and melon fruits in cold storage</b>  <i>C. Berger, M. Pages, L. Volmerange, V. Quintard, S. Gerbaud, C. Verdier, F. Violleau (France)</i></p>
16:00		Break

#### Session 3. Ozone reactions - Part 1

Hour	Presentation	
14:00	LP	<p><b>03.1. Non-target screening reveals the identity of carbonous and nitrogenous carbonyl- containing oxidation byproducts formed during ozonation of various water types</b>  <i>J. Houska, T. Manasfi, I. Gebhardt, U. Von Gunten (Switzerland)</i></p>
14:30	LP	<p><b>03.2. Pilot ozonation plant modelling for prediction of bromate formation, bromate mitigation and trace organic contaminant removal</b>  <i>G. Bellandi, R.M. Pearce, I. Takács, S. Hogard, G. Salazar-Benites, U. Rehman, C. Bott, W. Audenaert (Belgium, USA, France)</i></p>
15:00	LP	<p><b>03.3. Mimicking realistic ozonation conditions without using dissolved organic matter: Low molecular weight compounds as surrogates</b>  <i>S.A. Rath, U. Von Gunten (Switzerland)</i></p>
15:30	LP	<p><b>03.4. Decomposition of chlorophenols mixture by the combination of ozonation and biodegradation in continuous mode with recycling of treated water</b>  <i>A. González-Suárez, P. Guerra-Blanco, T. Poznyak, I. Chairez, J. Morales, E. Albitser (Mexico)</i></p>
16:00		Break

Hour	Presentation	Session 4. Engineering aspects - Part 1
14:00	LP	<b>04.1. Ozone Advanced Oxidation for 1,4-Dioxane Removal in Groundwater Remediation – Bench Tests to Full-scale Application and Process Control</b> <i>D. Funk, S. Giese (USA)</i>
14:30	LP	<b>04.2. Designing a full-scale ozonation plant for maximum micropollutants removal and minimal bromate formation, using Computational Fluid Dynamics simulation of chemical ozonation kinetics as optimization and validation tool</b> <i>R. Muoio, G. Bellandi, R. Schemen, P. van Horne, T.P.M. Spit, C.Y. de Jong, R. de Lepper, E. Buunk, R.J. van der Vleugel, U. Rehman, W. Audenaert (Belgium, The Netherlands)</i>
15:00	LP	<b>04.3. Developing of predictive Fuzzy Logic model in a Drinking Water Treatment Plant for controlling ozone dosing rate</b> <i>L. Ferrández-Galceran, A. Cabrera-Codony, P. Agustí, M. Carrasco, M. Poch, H. Monclús (Spain)</i>
15:30	LP	<b>04.4. Multi-point ozone dissolution for enhanced bromate control and trace contaminant oxidation in ozonation for potable reuse</b> <i>R. Pearce, S. Hogard, E. Rosenfeldt, C. Bott (USA)</i>
16:00		Break
Hour	Presentation	Session 5. Ozone for Agrifood - Part 2
16:30	LP	<b>05.1. Ozone in wineries to control microbial contaminants of wooden casks and emerging need for bioindicators</b> <i>A. Del Casale, F. Fracchetti, M. Tebaldi, C. Carboni, S. Torriani (Italy)</i>
17:00	LP	<b>05.2. The ozone molecule at the service of the vines : from the nurseries to the vineyard.</b> <i>A. Canado<sup>1</sup>, M. Pages-Homs, C. Berger, A. Romeo Olivan, R. Pierron, C. Breton, F. Violleau<sup>1,4</sup> Purpan (France)</i>
17:30		Posters short oral presentations
	SP	<b>05.3. Tomato growth and physicochemical properties affected by organic fertilization and ozonated water</b> <i>M.M. Reguieg, N. Ramdani, K. Chiali Charif, S. Nemnich, K. Nassour, A. Tilmatine (Algeria)</i>
	SP	<b>05.4. The Use of Ozone Technology to Control Microorganism Growth, Enhance Food Safety and Extend Shelf Life: A Promising Food Decontamination Technology</b> <i>W. Xue, J. MacLeod, J. Blaxland (UK)</i>
Hour	Presentation	Session 6. Ozone reactions - Part 2
16:30	LP	<b>06.1. Mechanistic investigation on nitrate formation during ozonation of organic nitrogenous compounds via stable isotope analysis</b> <i>J.W. Ra, K. Huang, J. Mohn, T.B. Hofstetter, U. Von Gunten (Switzerland)</i>
17:00	LP	<b>06.2. Alternative ozonation process as mitigation technique for bromate formation in the wastewater treatment</b> <i>K.F. Guerrero-Granados, J. Mante, M. Joy, A. Boergers, S. Schastok, C. Kube, S. Panglisch, J. Tuerk (Germany, USA)</i>
17:30	LP	<b>06.3. Ozone oxidation of a steel manufacturing wastewater</b> <i>C. Tizaoui, M. Munawa (UK)</i>
Hour	Presentation	Session 7. Engineering aspects - Part 2
16:30	LP	<b>07.1. Case Studies Make A Strong Case for Ozone Sidestream Injection</b> <i>J. Lauria, A. Mazzei (USA)</i>
17:00	LP	<b>07.2. Sidestream injection vs fine bubble diffusion: the role of ozone dissolution system design on bromate formation and control in water treatment and wastewater reuse</b> <i>R. Pearce, S. Hogard, E. Wert, E. Rosenfeldt, C. Bott (USA)</i>
17:30	LP	<b>07.3. Role of the immediate ozone reaction by the application of ozone strong water for an advanced wastewater treatment</b> <i>J. Mante, K.F. Guerrero-Granados, H. Zhang, A. Boergers, S. Panglisch, J. Tuerk (Germany, China)</i>
18:00	LP	<b>07.4. In Situ Chemical Oxidation using Ozone using Ozone for remediation of an aquifer impacted by hydrocarbons and ethers</b> <i>A. Crema, E. Pasinetti, M. Peroni, D. Soderino, F. Grecolini (Italy)</i>

Hour Presentation **Session 8. Young Ozone People (YOP) Workshop**

17:40 WS **08.1 Young Ozone People Workshop**  
*M. Pages, T. Merle (France)*

## Tuesday, 4 July

Hour Presentation **Session 9. Ozone reactions - Part 3**

8:30 LP **09.1. Is the peroxone process a viable alternative to conventional ozonation? A direct comparison of micropollutants degradation between ozone and hydroxyl radical routes.**  
*L. Bertolaso, M. Chipps, D. Moran, B. Jefferson, P. Jarvis, P. Campo, I. Carra (UK)*

9:00 LP **09.2. Degradation of extracellular and intracellular antibiotic resistance genes in water during ozonation process**  
*D. Das, A. Bordoloi, D.J. Caldwell, R.P.S. Suri (USA)*

9:30 LP **09.3. Advanced Oxidation of Tertiary Wastewater Micropollutants with Nearly-Zero Contact Time using a novel intensified advanced oxidation technology: Modeling and Validation Studies**  
*D. Santoro, O. Santoro, T. Pastore, S. Mancini, T. Masi, T. Mao (Canada, Italy)*

10:00 LP **09.4. Batch ozonation tests, combining lab experiments and CFD-kinetic simulations to improve standardization of the method**  
*G. Bellandì, R. Muoio, K. Guerrero-Granados, A.B. Sanchez, A. Börgers, R. Schemen, P. Vlasschaert, U. Rehman, A. Wieland, J. Türk, W. Audenaert (Belgium, Germany, The Netherlands)*

10:30 Break

Hour Presentation **Session 10. AOPs - Part 1 / Ozone-based AOPs**

8:30 LP **10.1. Elimination of drugs mixture by catalytic ozonation with Fe(OH)<sub>2</sub>/NiO and Fe(OH)<sub>2</sub> catalyst films synthesized by ultrasonic spray pyrolysis technique**  
*G.L. Morejón, T. Poznyak, J.L. Rodríguez Santillán, P. Guerra-Blanco (Mexico)*

9:00 LP **10.2. Treatment of a Mixture of Micropollutants by Powdered Activated Carbon – Catalyzed Ozonation**  
*M. Gamal El-Din, M. Alameddine (Canada)*

9:30 LP **10.3. Degradation of Benzoic Acid in the presence of NiO and CeO<sub>2</sub> films by ozone**  
*D. Franco-Peláez, J.L. Rodríguez Santillán, T. Poznyak, P. Guerra-Blanco (Mexico)*

10:00 LP **10.4. Catalytic ozonation of substituted phenols and industrial application for coking wastewater treatment**  
*Y. Xie, H. Cao (China)*

10:30 Break

**Session 11. Ozone in Medicine - Part 1 / Introduction. COVID prevention and convalescence**  
| Chairs: Olga León Fernandez, Michael Schreiber

Hour Presentation

8:30 LP **11.1. The Low-Dose Ozone Concept. Is there a prominent biochemical mechanism underlying all indications of systemically administered ozone ?**  
*R. Viebahn-Haensler, O.S. León Fernández (Germany, Cuba)*

9:00 LP **11.2. The Role of Ozone Therapy as Adjuvant in the Management of Covid-19 in Indonesia**  
*D. Chaijadi, A. Hendradiana, P. Djoko Tjahjono, E. Kusumaningsih, C. Nathan, Hariyanto, D. Surya Atmadja, R. Viebahn-Haensler (Indonesia, Germany)*

9:30 LP **11.3. Treatment of Long-COVID with systemic ozone therapy: Importance of the 'proper dose'**  
*G. Tricarico, V. Travagli (Italy)*

10:00 LP **11.4. The impact of ozone therapy in prevention, treatment of COVID-19, and post- COVID syndrome.**  
*G. Martínez-Sánchez (Italy)*

10:30 Break

Hour Presentation **Session 12. Workshop - Sidestream injection of ozone**

WS **12.1. Sidestream injection of ozone**  
*M. Roustan, J. Lauria (France, USA)*



Hour	Presentation	Session 13. Engineering aspects - Part 3 / DWP
11:00	LP	<b>13.1. CT Calculation Methods for Achieving Cryptosporidium Inactivation Credit with Ozone</b> <i>C. Schulz, C. Ngan, E. Wert (USA)</i>
11:30	LP	<b>13.2. Assessment of Temperature Effects on Ozonation Performance and Bromate Formation Resulting from Severe Drought Conditions</b> <i>B. Abada, E. Wert, A. Atkinson (USA)</i>
12:00	LP	<b>13.3. Emerging contaminants in drinking water treatment plants: how ozonation affects activated carbon adsorption</b> <i>B. Cantoni, J. Ianes, B. Bertolo, S. Ziccardi, F. Maffini, M. Antonelli (Italy)</i>
12:30		<b>Posters short oral presentations</b>
	SP	<b>13.4. Cutting-Edge Ozone-Technology for Water Treatment</b> <i>V.J.P. Vilar, I. Rodrigues, P.H. Marrocos, M.M. Pituco, F. Moreira, A.F.P. Ferreira, R.J. Santos, (Portugal)</i>
	SP	<b>13.5. High efficiency Plug flow Ozone Reactor including multiple dissolving function</b> <i>K.J. Kim (Republic of Korea)</i>
	SP	<b>13.6. Use of micronanobubble aeration in wastewater treatment</b> <i>M. Mohamed, M. Kizhisseri, M. Sakr, M. Maraqa, M. Hamouda (United Arab Emirates)</i>
12:30		Lunch

**Session 14. Ozone in Medicine - Part 2 / Clinical studies and pharmacological effects |**  
Chairs: Renate Viebahn-Haensler, Tarek Tanbouli

Hour	Presentation	Session 14. Ozone in Medicine - Part 2 / Clinical studies and pharmacological effects
11:00	LP	<b>14.1. Pharmacological mechanisms of medical ozone and its beneficial effects on elderly patients with oxidative etiology diseases</b> <i>O.S. León Fernández, R. Viebhan-Hänsler, G. Takon Oru (Cuba, Germany)</i>
11:30	LP	<b>14.2. Do oxygen-ozone mixtures affect cell proliferation and death? In vitro studies</b> <i>M. Malatesta, C. R. Inguscio, M. A. Lacavalla, F. Carton, B. Cisterna (Italy)</i>
12:00	LP	<b>14.3. Application of medical ozone in the complex treatment of distal forms of nonspecific ulcerative colitis</b> <i>S.N. Navruzov, A.M. Khakimov, B.S. Navruzov, S.T. Rakhmonov, E.E. Kulmiev, U.G. Vohidov, A.S. Shodiev, H.H. Choriev (Uzbekistan)</i>
12:30		Lunch

Hour	Presentation	Session 15. AOPs - Part 2 / Ozone-based AOPs
14:00	LP	<b>15.1. Application of ultrasound-assisted ozonation for micropollutant elimination in wastewater treatment plants</b> <i>J. Tuerk, K.F. Guerrero-Granados, A. Boergers, S. Panglisch, W. Neumann (Germany, Switzerland)</i>
14:30	LP	<b>15.2. Numerical simulation of hydroxyl radical production during hydrodynamic cavitation in the presence of dissolved ozone</b> <i>A. Kumar, Y. Huacallo-Aguilar, R. Rangarajan, N. Matzke, S.F. Reinecke, W. Ding, M. Meier, U. Hampel, (Germany)</i>
15:00	LP	<b>15.3. Influence of the inlet pressure, flowrate and ozone dosage on the ozonation/cavitation for the rapid removal of succinic acid</b> <i>Y. Huacallo-Aguilar, A. Kumar, J. Mante, M. Meier, S.F. Reinecke, U. Hampel (Germany)</i>
15:30		<b>Posters short oral presentations</b>
	SP	<b>15.4. Novel bubble column designed for catalytic ozonation with heterogenic structural catalyst</b> <i>M. Bilińska, L. Bilińska, M. Gmurek (Poland)</i>
	SP	<b>15.5. Metronidazole degradation by ozone advanced oxidation processes</b> <i>M.A. Jiménez-López, F.J. Beltrán, F.J. Rivas, P.M. Álvarez (Spain)</i>
	SP	<b>15.6. Kinetic modelling development of photocatalytic bacterial inactivation: influence of operational conditions in the inactivation constant</b> <i>Samuel Moles, R. Moreno, M.P. Ormad, R. Mosteo, A. Monzón (Spain)</i>
	SP	<b>15.7. Degradation of imidazolium based ionic liquids by pulsed corona discharge and UV photolysis assisted with extrinsic oxidants</b> <i>D. Nikitin, S. Preis, N. Dulova (Estonia)</i>



- SP **15.8. Peroxydisulphate Activation by Ag/TiO<sub>2</sub> Under Sunlight: elucidation of routes for a fluoroquinolone degradation, evolution of the antimicrobial activity, and potentialities for water disinfection.**  
*S.D. Jojoa-Sierra, C. Jaramillo-Páez, M.C. Hidalgo, J.A. Navío, M.P. Ormad, E.A. Serna-Galvis, R.A. Torres-Palma, R. Mosteo (Spain, Colombia)*

16:00 Break

Hour Presentation **Session 16. Advanced treatment of wastewaters / Part 1**

- 14:00 KN **16.1. Water Reuse to provide Sustainability and reduce impacts of Climate Change on Water Systems**  
*S.Y. Jasim (Canada)*
- 15:00 LP **16.2. Ozonation of effluent from a wastewater treatment plant in the Netherlands, origination and current progress**  
*M. Hoekstra, M. Spruijt, J. Versteegh, T. Keesman, R. Van Der Neut, R. Koolen (The Netherlands)*
- 15:30 LP **16.3. Feasibility assessment of ozonation at a coastal WWTP in Sweden with virtual piloting of a full-scale installation**  
*G. Bellandi, R. Muoio, Z. Kaleh, V. Karelid, J. Suokko, U. Rehman, W. Audenaert (Belgium, Sweden)*
- 16:00 Break

**Session 17. Ozone in Medicine - Part 3 / Pain, Orthopedics** | Chairs: Ziad Fahmy, Wilhelm Schüler

- Hour Presentation
- 14:00 LP **17.1. Ozone Therapy & Treatment of Fibromyalgia**  
*T.T. Tanbouli (Egypt)*
- 14:30 LP **17.2. New Approach to Chronic Back Pain Treatment: A Case Control Study**  
*M. Bonetti, D. Lauritano, G.M. Ottaviani, A. Fontana, M. Frigerio, A. Zambello, L. Della Gatta, M. Muto, F. Carinci (Italy)*
- 15:00 LP **17.3. Role of intra-articular Ozone gas injection in the management of internal derangement of the temporomandibular joint**  
*E.T. Daif (Egypt)*
- 15:30 LP **17.4. Immunological Aspects of Ozone Treatment in Rheumatoid Arthritis**  
*Z. Fahmy (Germany)*
- 16:00 Break

Hour Presentation **Session 18. AOPs - Part 3 / Non Ozone-based AOPs**

- 16:30 LP **18.1. Persulfate Activated by Non-Thermal Plasma for Pharmaceuticals Degradation**  
*D. Nikitin, E. Kattel-Salusoo, S. Preis, N. Dulova (Estonia)*
- 17:00 LP **18.2. Organic Micropollutants Removal through Performic Acid-UV Photolysis: kinetics and wastewater matrix influence**  
*C. Nabintu Kajoka, S. Brosillon, J. Gasperi, M. Oliveira, V. Rocher, G. Chebbo, J. Le Roux (France)*
- 17:30 SP **18.3. Evaluating the effects of Ozone, UV and NaClO as an Advanced Oxidation Process in surface water in a DWTP of Catalonia**  
*L. Ferrández-Galceran, A. Cabrera-Codony, M. Valentí, M.J. Martín, P. Agustí, M. Carrasco, H. Monclús (Spain)*

Hour Presentation **Session 19. Advanced treatment of wastewaters- Part 2 / Reuse purpose**

- 16:30 LP **19.1. The Potential of Ozonation in Advanced Wastewater Treatment for Pharmaceutical Control and WWTP Effluent Reuse in the Netherlands**  
*M. Spruijt, M. Hoekstra, R. Koolen, B. Martijn (The Netherlands)*
- 17:00 LP **19.2. The Role of Ozone Treatment in Potable Water Reuse: Overview and Global Case Studies**  
*A. Vieira, D. Perrin, J. Citulski, J. Reungoat, S. Katz (USA, France, Canada)*
- 17:30 LP **19.3. Status Implementation of EU Reuse Regulation 2020/741 in Germany - Wastewater Reuse for agriculture**  
*A. Ried (Germany)*
- 18:00 **Posters short oral presentations**
- SP **19.4. Treatment of Wastewater by Ozone Produced in Dielectric Barrier Discharge**  
*N. Ramdani, K. Chiali Charif, M.M. Reguieg, S. Nemnich, K. Nassour, G. Mimanne, A. Tilmatine (Algeria)*

- SP **19.5. Disinfection via electrogenerated ozone for wastewater reuse**  
*M.P. Castro, I.F. Mena, M.A. Montiel, M.A. Rodrigo, J. Gäbler, L. Schäfer (Spain, Germany)*
- SP **19.6. Combined O<sub>3</sub>/GAC/O<sub>3</sub>/VMT-mag systems for Simultaneous Removal of Metals and Pesticide**  
*T.S. Viana, L.A. Camara, R.P. Cavalcante, M. Bartilotti, R.F. Dantas (Brazil, USA)*
- SP **19.7. Aerobic stabilization with pre-ozonation of residual sludge in the dairy industry's wastewater treatment plant**  
*C.R. Ramírez-Cortina, A. Colín-Sánchez, M.S. Alonso-Gutiérrez (Mexico)*
- SP **19.8. Removal of dyes from synthetic textile wastewater by ozonation and Activated carbon process**  
*K. Chiali Charif, N. Ramdani, S. Nemmiche, M.M. Reguig, K. Nassour, G. Mimmane, A. Tilmatine (Algeria)*
- SP **19.9. Urban wastewater treatment by ozonation: pathogens and microcontaminants removal, disinfection byproducts and toxicity evaluation**  
*K.J. Castañeda Retavizca, K. O'Dowd, S. Nahim-Granados, P. Plaza-Bolaños, S. Malato, M.I. Polo-López, S. Pillai, A. Agüera, I. Oller (Spain, Ireland)*

**Session 20. Ozone in Medicine - Part 4 / Application & Safety | Chair: Matteo Bonetti**

Hour	Presentation	
16:30	LP	<b>20.1. Safety and efficacy parameters for medical ozone equipment according to current EU legislation</b> <i>G. Tricarico, V. Travagli (Italy)</i>
17:00	LP	<b>20.2. How to assess an optimal blood ozonisation in Systemic Ozonized Autohaemotherapy: a bedside indicator</b> <i>A. De Monte, M. Buttazoni, F. Bassi, G. Sermann, C. Gori, C. Macor, A. Ercolini, L. D'orlando (Italy)</i>
17:30		<b>Posters short oral presentations</b>
	SP	<b>20.3. Application of medical ozone in purulent surgery</b> <i>S.N. Navruzov, A.M. Khakimov, B.S. Navruzov, S.T. Rakhmonov, E.E. Kulmiev, U.G. Vohidov, A.S. Shodiev (Uzbekistan)</i>
	SP	<b>20.4. The effectiveness of ozone therapy in the prevention of purulent infection after "reduction" surgery</b> <i>S.N. Navruzov, A.M. Hakimov, B.S. Navruzov, S.T. Raxmonov (Uzbekistan)</i>
	SP	<b>20.5. Effectiveness of ozone therapy in gynaecology</b> <i>R.S. Navruzova, B.S. Navruzov, A.M. Khakimov (Uzbekistan)</i>
	SP	<b>20.6. Virucidal Efficacy of Gaseous Ozone against Type 1 Herpes Simplex Virus (HSV-1)</b> <i>E.K. Ahortor, L. Baillie, D. Lloyd, J.A. Blaxland (UK)</i>
18:00	RT	<b>Round Table</b>

**Wednesday, 5 July**

**Session 21. Ozone reactions**

Hour	Presentation	
8:30	LP	<b>21.1. Simultaneous multi-compound ozonation competition kinetic measurements of complex cyanopeptide mixtures</b> <i>V. Rougé, E.M.-L. Janssen, U. von Gunten (Switzerland)</i>
9:00	LP	<b>21.2. Does ozonation enhance activated carbon adsorption of PFAS in textile wastewater?</b> <i>B. Cantoni, G. Bergna, E. Baldini, M. Antonelli (Italy)</i>
9:30	LP	<b>21.3. Characterization of lignin extracted from Miscanthus giganteus by ozonation in a pilot-scale reactor</b> <i>M. Ebrahimi, V. Acha, L. Rhazi, S. Bresson, L. Hoang, T. Aussenac (France, Spain)</i>
10:00		<b>Posters short oral presentations</b>
	SP	<b>21.4. Phenol ozonation modelling. Coupling the penetration theory and mass balances</b> <i>F. Javier Rivas, F. Beltran (Spain)</i>
	SP	<b>21.5. Modelling ozone disinfection for municipal wastewater in presence of HO• scavengers using the ROH concept</b> <i>J.A. Malvestiti, R.P. Cavalcante, L.R.D. Sommaggio, R.F. Dantas (Brazil)</i>
	SP	<b>21.6. Treatment of Fluoranthene in Wastewater by Ozonation</b> <i>A. Catton, C. Tizaoui, M. Gerardo (UK)</i>
	SP	<b>21.7. Genotoxicity and pathogenic bacteria removal from Secondary Effluents after Ozonation</b> <i>J.A. Malvestiti, L.R.D. Sommaggio, D.E.C. Mazzeo, M.A. Marin-Morales, R.P. Cavalcante, F.A. Oliveira, C.E. Levy, R.F. Dantas (Brazil)</i>

10:30 Break

Hour Presentation **Session 22. Advanced treatment of wastewaters - Part 3 / Micropollutant focus**

- 8:30 LP **22.1. Micropollutant Removal Combinations with Ozone for Effective and Resilient Treatment Solutions**  
*L. Dinkloh, L. De Franceschi, A. Murillo, G. Scaramuzzi (Switzerland)*
- 9:00 LP **22.2. Ozonation is an Effective Treatment Method to Degrade the Antiviral Drug Oseltamivir in Municipal Secondary Effluent**  
*M. Gamal El-Din, S. Jansen van Beek (Canada)*
- 9:30 LP **22.3. Ozone tertiary treatment for pharmaceuticals and personal care products removal from municipal wastewater**  
*E. Pasinetti, M. Peroni, M. Cascio, M. Antonelli, F. Malpei, A. Turolla, L. Virtuoso, L. Guzzella, L. Marziali, L. Valsecchi, F. Cappelli, S. Tasselli, E. Valenti, D. Oliva (Italy)*
- 10:00 LP **22.4. Comparative Life Cycle Assessment of advanced wastewater treatments for micropollutant removal**  
*R. Serra, E. Judenne, A. Gonzalez Ospina, S. Baig (France)*
- 10:30 Break

Hour Presentation **Session 23. Ozone in Medicine - Part 5 / Workshop**

- 8:30 LP **23.1. Role of Ozone Treatment in Disc Lesions in Diabetic Patients**  
*U.R. Chaudhry (Pakistan)*
- 9:00 LP **23.2. Administration procedures of medical ozone by local injection in small and large joints**  
*G. Tabaracci (Italy)*
- 9:45 LP **23.3. The importance of ozone water in holistic dentistry and the systemic ozone application for the oral microbiome and its long-distance effects**  
*W. Schueler (Germany)*
- 10:30 Break

Hour Presentation **Session 24. Workshop / The energy vectors**

- WS **24.1. The energy vectors of Oxygen and enriched oxygen = Ozone**  
*M. Wolfs (The Netherlands)*
- 12:30 Lunch

Hour Presentation **Session 25. Advanced treatment of wastewaters - Part 4**

- 11:00 LP **25.1. Removal of organic micropollutants, nutrients and suspended solids from wastewater treatment effluent using ozonation in combination with a denitrifying activated carbon filter: results of a pilot-study in The Netherlands**  
*T.P.M. Spit, J.P. van der Hoek, T. van den Eijnde, C.M. Morgenschweis, M. Bechger, L.T.J. van der Aa, V.M. Luimstra (The Netherlands)*
- 11:30 LP **25.2. Validating ozone disinfection for indirect potable reuse**  
*S. Hogard, R. Pearce, R. Gonzalez, C. Bott (USA)*
- 12:00 LP **25.3. Disinfection as surrogate of micropollutants removal during ozonation of secondary effluent**  
*R.F. Dantas, J. Cristale, C.G Canela, I. Seabra, J. Malvestiti, S. Lacorte (Brazil, Spain)*
- 12:30 Lunch

Hour Presentation **Session 26. Ozone in Medicine - Part 6 / Workshop**

- 11:00 LP **26.1. Workshop on Medical Ozone**  
*M. Schreiber (Germany)*
- 12:00 RT **Round Table**
- 12:30 Lunch

Hour Presentation **Session 27. Ozone and sludge**

- 14:00 LP **27.1. Sludge Ozonolysis to enhance anaerobic digestion: a lab-scale and full-scale case study**  
*D. Soderino, M. Peroni, E. Pasinetti, D. Preda, M. Cascio, A. Catenacci, F. Malpei, M. Bernardi (Italy)*



- 14:30 LP **27.2. Full scale ozonolysis in biological oxidation: a case study**  
*M. Peroni, E. Pasinetti, D. Soderino, R. Canziani, A. Catenacci, M. Cascio, M. Bernardi, D. Oliva (Italy)*
- 15:00 LP **27.3. What are the benefits of injecting ozone in a MBR**  
*L. De Franceschi, B. Heiniger, A. Murillo, L. Dinkloh, K. Mende, S. Baumgarten (Switzerland, Germany)*
- 15:30 Break

Hour Presentation **Session 28. Advanced treatment of wastewaters - Part 5**

- 14:00 LP **28.1. Examining the Challenges of Implementing Ozonation and Activated Carbon Treatment for Pharmaceutical Wastewater in Real-World Settings**  
*S. Hedwig, L. Loreggian, N. Furler, R. Hochstrat, F. Sacher, E. Plettig, L. Emmer, M. Langer, M. Thomann (Switzerland, Germany)*
- 14:30 LP **28.2. Wastewater treatment by ozonation for reducing the wastewater toxicity**  
*A. Bettinardi, C. Carboni, A. Sacco (Italy, USA)*
- 15:00 LP **28.3. Integration of biological and ozonation models for the Eindhoven WWTP for optimal micropollutants removal, minimal bromate formation, and improved effluent quality**  
*G. Bellandi, R. Muoio, S. Daneshgar, E. Torfs, R. Schemen, P. van Dijk, S. Weijers, U. Rehman, W. Audenaert (Belgium, The Netherlands)*
- 15:30 Break

Hour Presentation **Session 29. Workshop / For a relevant use of ozone**

- 14:00 WSP **29.1. For a relevant use of ozone**  
*B. Paolini, M. Rothlin, C. Carboni, M. Roustan (Switzerland, Italy, France)*
- 15:30 Break

Hour Presentation **Session 30. Congress Closing and Awards Ceremony**

- 16:00 KN **30.1. Keynote lecture**  
**Some highlights and challenges in ozone research from my experiences in the last 30 years**  
*U. Von Gunten (Switzerland)*
- 16:40 **Awards**  
Harvey Rosen Prize  
Willy Masschelein Prize  
Best poster & Best paper
- 17:20 **Congress synthesis and conclusions**