

Please note the following:

Plenary talk: 45 min + 15 min Q&A; Keynote: 30 min + 10 min Q&A; Regular talk: 15 min + 5 min Q&A
Also, note that presentations are indicated in this program with the name of the first author and his/her affiliation as reported in the related abstract. The first author may not necessarily be the presenter.

Sunday 15 September

Politecnico di Torino, 10138 Torino, Court (<https://maps.app.goo.gl/qSW7UiWtPK4htiBZ7>)

17:30 – 19:15 Welcome reception

Monday 16 September

Politecnico di Torino, 10138 Torino, Room 10i adjacent to court (<https://maps.app.goo.gl/qSW7UiWtPK4htiBZ7>)

8:30 – 9:00 Registration

9:00 – 9:10 Opening of IAP2024

9:10 – 10:15 Plenary:
Prof. Christa McArdell, EAWAG, Switzerland
“Advanced wastewater treatment to abate micropollutants: Switzerland as example for EU?” (*_0)
Chair: Philippe Behra, Institut National Polytechnique de Toulouse, France

Politecnico di Torino, 10138 Torino (<https://maps.app.goo.gl/qSW7UiWtPK4htiBZ7>)

10:15 – 10:50 Refreshment break and set up of posters (posters in Room 12i)

Room 8i (a) - Role of interfaces in pollutant dynamics

Room 10i (b) - Theory and Modeling of Interfaces and Interface Phenomena

Chair: Takumi Saito, The University of Tokyo, Japan

Chair: Yasuhisa Adachi, University of Tsukuba, Japan

10:50 – 11:30 Keynote:
Prof. Monica Passananti – University of Helsinki, Finland; University of Turin, Italy
“Study on multiphase degradation of plastic nanoparticles” (a4_0)

10:50 – 11:30 Keynote:
Prof. Claire Chassagne – TU Delft, The Netherlands
“Modeling flocculation” (b3_0)

11:30 – 11:50	Hou <i>et al.</i> - Huazhong Agricultural University, China The interfacial reaction hotspot in metastable iron minerals: the role and contribution to arsenic immobilization (a4_1)	11:30 – 11:50	Lesniewska <i>et al.</i> - Université de Lorraine-CNRS, France Conditional existence of Donnan potential in soft particles and surfaces: dependence on steric effects mediated by electrolyte ions and structural charges (b3_1)
11:50 – 12:10	Assaf <i>et al.</i> - Université Paris-Saclay, France Impact of mixed organic compounds on Ni(II) retention in clay rocks: Complexation and synergetic effects (a4_2)	11:50 – 12:10	Wang <i>et al.</i> – Université de Lorraine-CNRS, France Modelling trace metal binding to humic matter: presenting NICA-SPBT-PEST and discussing the validity of ‘generic’ parameters (b3_2)
12:10 – 12:30	Wiersma <i>et al.</i> - Wageningen University and Research, The Netherlands How to measure and model cadmium availability in tropical soils for low-cadmium sustainable cacao? (a4_3)	12:10 – 12:30	Van Raffe <i>et al.</i> – Wageningen University and Research, The Netherlands Chromium(III) Binding to Purified Fulvic and Humic Acid and its Solid Solution Partitioning and Speciation in Soil (b3_3)
12:30 – 14:00	Lunch		
Room 8i (a) - Role of interfaces in pollutant dynamics cont'd		Room 10i (b) - Theory and Modeling of Interfaces and Interface Phenomena cont'd	
Chair: Yael Mishael, The Hebrew University of Jerusalem, Israel		Chair: Jérôme F.L. Duval, Université de Lorraine, France	
14:00 – 14:20	Saito <i>et al.</i> - The University of Tokyo, Japan Hierarchical aggregation of humic nano colloids induced by metal ion binding by small-angle X-ray and neutron scattering (a4_4)	14:00 – 14:20	Borisover <i>et al.</i> – The Volcani Institute, Israel Does a Humic Model Disintegrate Upon Dilution? A Molecular Dynamics Simulation of Water Content Effects (b3_4)
14:20 – 14:40	Town <i>et al.</i> - Universiteit Antwerpen, Belgium Uptake/Release Kinetics of Metal Ions and Organic Molecules by Micro- and Nano-Plastics (a4_5)	14:20 – 14:40	Wulandari <i>et al.</i> – University of Tsukuba, Japan Application of standardized colloid mixing in terms of rate of coagulation to evaluate various types of flocculants in the early stages of flocculation (b3_5)

14:40 – 15:00	Pradel <i>et al.</i> - ETH Zurich, Switzerland Role of self-filtration in the deposition of fragments: the case of micro- and nanoplastics (a4_6)	14:40 – 15:00	Tsukanov <i>et al.</i> – The Hebrew University of Jerusalem, Israel Does It Slip? Water Flow at the Solid-Liquid Interface of Porous Media: Insights from Spectral Induced Polarization (b3_6)
15:00 – 15:20	Abid <i>et al.</i> - University of Turin, Italy Interface between polyethylene terephthalate microplastics and microbiota activity in the ruminal environment (a4_7)	15:00 – 15:20	Tan <i>et al.</i> – Huazhong Agricultural University, China Structural-controlled formation of nano-particle hematite and their removal performance for heavy metal ions (b3_7)
15:20 – 15:40	Van Hoef <i>et al.</i> - Wageningen University and Research, The Netherlands pH-dependent contaminant availability in relation to reactive surface (trans)formation during field scale sediment ripening (a4_8)	15:20 – 15:40	Gangal <i>et al.</i> – Wetsus, The Netherlands Modelling Biogenic Manganese and Iron Oxide Generation and Subsequent Removal of Organic Micropollutants (b3_8)
15:40 – 16:10	Refreshment break		
Room 8i (a) - Role of interfaces in pollutant dynamics cont'd		Room 10i (b) - Theory and Modeling of Interfaces and Interface Phenomena cont'd	
Chair: Yael Mishael, The Hebrew University of Jerusalem, Israel		Chair: Jérôme F.L. Duval, Université de Lorraine, France	
16:10 – 16:30	Toda <i>et al.</i> - The University of Tokyo, Japan Interfacial reactions affecting the Cs leaching behaviors of adsorbents solidified with cement and geopolymer (a4_9)	16:10 – 16:30	Dykstra <i>et al.</i> – Wageningen University and Research, The Netherlands Early breakthrough of activated carbon filters for PFAS removal: mechanisms and technology development (b3_9)
16:30 – 16:50	Schenkeveld <i>et al.</i> - Wageningen University and Research, The Netherlands Degradation of chrysotile asbestos in soil (a4_10)	16:30 – 16:50	Mortada <i>et al.</i> – Université de Reims Champagne-Ardenne, France Towards the use of mathematical models in predicting the retention of fluoroquinolones in soils (b3_10)

16:50 – 17:10	Huang <i>et al.</i> - Huazhong Agricultural University, China An in-situ method of SEM-EDS combined with image processing to evaluate the speciation and transformation of Cu and Pb in contaminated soil (a4_11)	16:50 – 17:10	Jin <i>et al.</i> – Huazhong Agricultural University, China Generic phosphate affinity constants of the CD-MUSIC-eSGC model to predict phosphate adsorption and dominant speciation on iron (hydr)oxides (b3_11)
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Politecnico di Torino, 10138 Torino (<https://maps.app.goo.gl/qSW7UiWtPK4htiBZ7>)

17:10 – 18:00	Poster session
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Tuesday 17 September

Politecnico di Torino, 10138 Torino (<https://maps.app.goo.gl/qSW7UiWtPK4htiBZ7>)

Room 8i (a) - Role of interfaces in pollutant dynamics cont'd		Room 10i (b) - Interfaces Applied in Decontamination Systems	
Chair: Josep Galceran, University of Lleida, Spain		Chair: David Waite, University of New South Wales, Australia	
9:00 – 9:20	Geysels <i>et al.</i> - Wageningen University and Research, The Netherlands Glyphosate speciation at the goethite interface: insights from surface complexation modelling and competition (a4_12)	9:00 – 9:40	Keynote: Dr. Carlo Bianco – Politecnico di Torino, Italy Advanced nanoremediation processes for the effective removal of complex mixtures of persistent pollutants from groundwater (b2_0)
9:20 – 9:40	Peng <i>et al.</i> - Wageningen University and Research, The Netherlands PFOA and PFOS binding onto Goethite: Experimental results and modelling with the Charge Distribution and Multi-site Complexation (CD-MUSIC) Model (a4_13)		
9:40 – 10:00	Circelli <i>et al.</i> - University of Molise, Italy Microplastics identification in biosolids: application of NIR spectroscopy coupled with multivariate statistics (a4_14)	9:40 – 10:00	Nga Pham <i>et al.</i> – Université de Toulouse, France Study of the removal of copper by sorption onto lignocellulosic materials (b2_1)
10:00 – 10:20	Antelo <i>et al.</i> - University of Santiago de Compostela, Spain Iron mineral surfaces and their impact on pollutant attenuation in acid mine drainage (a4_15) - ONLINE	10:00 – 10:20	Barreca <i>et al.</i> – University of Catania, Italy Reimagining the process of environmental remediation: An inventive "Up-and-Down" adsorption technique for eliminating Pyrene from acidic wastewater (b2_2)
10:20 – 10:50	Refreshment break		

Room 8i (a) - Advances in the characterization of interfaces and interface processes		Room 10i (b) - Interfaces Applied in Decontamination Systems cont'd	
Chair: Raewyn Town, University of Antwerp, Belgium		Chair: David Waite, University of New South Wales, Australia	
10:50 – 11:30	Keynote 5: Prof. Eric Achterberg – Chemical Oceanography GEOMAR, Helmholtz Centre for Ocean Research Kiel, Germany	10:50 – 11:10	Gavriely et al. – Tel Aviv University, Israel Mucin-based Solutions for Water Decontamination (b2_3)
	“New insights from the International GEOTRACES Programme on impacts of ocean boundaries and particle dynamics on ocean trace element biogeochemistry” (a5_0)	11:10 – 11:30	Benkhaled et al. – Institut Européen des Membranes, France Novel Biocompatible Trianglamine Networks for Efficient Iodine Capture (b2_4)
11:30 – 11:50	Tufenkji <i>et al.</i> – McGill University, Canada Advanced Methods to Detect and Image Microplastics and Nanoplastics in Whole Organisms (a5_1)	11:30 – 11:50	Baran et al. – Université Côte d’Azur, France Purification of metal-polluted water by a lavandin-based hydrochar (b2_5)
11:50 – 12:10	Anies <i>et al.</i> – Universiteit Antwerpen, Belgium In-situ application of the active-passive sampling (APS) technique for monitoring psychoactive compounds in wastewater (a5_2)	11:50 – 12:10	N’Gole et al. – Université Savoie Mont Blanc, France Nitrogen enriched activated carbons for the CO ₂ capture and separation (b2_6)
12:10 – 12:30	Gibeaux <i>et al.</i> – Université Savoie Mont Blanc, France Chitosan-based passive samplers for the analysis of norovirus in water by adsorption and desorption (a5_3)	12:10 – 12:30	Gallard et al. – Laboratoire de Chimie Agroindustrielle, Toulouse, France Phytosterols and lipids for methane capture (b2_7)
12:30 – 12:50	Li <i>et al.</i> – University of Montreal, Canada Extraction of inorganic nanoparticles from soils and their characterization by single particle ICP-MS (a5_4)	12:30 – 12:50	CANCELED
12:50 – 14:30	Lunch and poster session		

Room 8i (a) - Soil biogeochemistry and agriculture		Room 10i (b) - Interfaces Applied in Decontamination Systems cont'd	
Chair: Tiziana Tosco, Politecnico di Torino, Italy		Chair: Jerzy Zajac, University of Montpellier, France	
14:30 – 15:10	Keynote: Prof. Renato Grillo – Sao Paulo State University, Brazil “Nano-enabled materials for sustainable agriculture” (a1_0)	14:30 – 14:50	Souifi et al. – University of Sfax, Tunisia Evaluation of porous carbon/CNTs Composite Membranes for Tannery Wastewater Treatment : Enhancing adsorption Efficiency through Membrane Filtration (b2_9) - ONLINE
		14:50 – 15:10	Vione et al. – University of Turin, Italy Heterogeneous Fenton Processes for Water Treatment (b2_10)
15:10 – 15:30	Gassenbauer <i>et al.</i> – The Hebrew University of Jerusalem, Israel Insights into Environmentally Friendly Foliar Fertilization - Effect of Surfactant Dynamics on Zn ²⁺ Penetration (a1_1)	15:10 – 15:30	Sciscenko et al. – University of Turin, Italy Optimization of the photocatalytic properties of g-C ₃ N ₄ for environmental applications (b2_11)
15:30 – 15:50	Kou <i>et al.</i> – Huazhong Agricultural University, China Cadmium and Lead Interaction: A Model for Assessing Combined Heavy Metal Contamination in Soils for Food Safety Risk Evaluation (a1_2)	15:30 – 15:50	Waite et al. – University of New South Wales (UNSW), Australia; UNSW Centre for Transformational Environmental Technologies China Performance evaluation and optimization of a suspension-type reactor for use in heterogeneous catalytic ozonation (b2_12)
15:50 – 16:20	Refreshment break		

Room 8i (a) - Soil biogeochemistry and agriculture cont'd		Room 10i (b) - Interfaces Applied in Decontamination Systems cont'd	
Chair: Tiziana Tosco, Politecnico di Torino, Italy		Chair: Jerzy Zajac, University of Montpellier, France	
16:20 – 16:40	Yabuki <i>et al.</i> – University of Lleida, Spain Availability and Desorption Kinetics of Phosphorus in Soils (a1_3)	16:20 – 16:40	Farinelli <i>et al.</i> – Institut Européen des Membranes, France Chitosan-based reactive surface for disinfection and contaminants degradation (b2_13)
16:40 – 17:00	Beceiro-Cillero <i>et al.</i> – University of Santiago de Compostela, Spain Abiotic reduction of nitrate by iron oxides and organic acids precursors (a1_4)	16:40 – 17:00	Saija <i>et al.</i> – Politecnico di Torino, Italy Adsorption-based water desalination: A bench scale performance evaluation (b2_14)
17:00 – 17:20	Forini <i>et al.</i> – São Paulo State University, Brazil Magnetic hybrid supraparticles: a novel strategic design for controlled release of agrochemicals (a1_5)	17:00 – 17:20	Eder <i>et al.</i> – University of Amsterdam, The Netherlands Designing a Nature-inspired Engineering Tool to Address Soil Pollution (b2_15)
17:20 – 17:40	Dayan <i>et al.</i> – The Hebrew University of Jerusalem, Israel Polysaccharide-Coated Apatite Formulations: Enhanced Crop P-Uptake and Reduced Leaching (a1_6)	17:20 – 17:40	Longobardi <i>et al.</i> – Università degli studi del Molise, Italy Use of biochar to remediate two different soils polluted by Pb and As (b2_16)
17:40 – 19:40	Meeting of the Board of IAP (only for Board members)		
<i>Mercato Centrale, 10152 Torino (https://maps.app.goo.gl/NQYbu8ohfVakG1eg6)</i>			
20:00 – 23:00	Social dinner		

Wednesday 18 September

Politecnico di Torino, 10138 Torino (<https://maps.app.goo.gl/qSW7UiWtPK4htiBZ7>)

Room 8i (a) - Soil biogeochemistry and agriculture cont'd

Chair: Wenfeng Tan, Huazhong Agricultural University, China

- 9:00 – 9:20 Akhdar *et al.* – Institut Charles Gerhardt de Montpellier CNRS, France
Calorimetric screening of microbial activity in a model condition of soil contamination (a1_7)
- 9:20 – 9:40 Wiersma *et al.* – Wageningen University & Research, The Netherlands
Quantifying the accuracy, uncertainty and sensitivity of soil geochemical multi-surface models (a1_8)
- 9:40 – 10:00 Marchetti *et al.* – University of Perugia, Italy
Metals and metalloids uptake and translocation in *Phragmites australis* specimens (a1_9)

Room 10i (b) - - Interfaces Applied in Decontamination Systems cont'd

Chair: Marco Minella, University of Turin, Italy

- 9:00 – 9:20 Nguyen *et al.* – Saigon University, Vietnam
Revolving Algae Biofilm: An emerging green technology for wastewater treatment and biomass production (b2_17)
- 9:20 – 9:40 Raval *et al.* – Université Savoie Mont Blanc, France
Activated carbons with supported magnetic particles for the removal of micropollutants from wastewater (b2_18)
- 9:40 – 10:00 Le Thi *et al.* – Université Côte d'Azur, France
Electromigration to remove phosphate ions from an aquaculture pond by adsorption (b2_19)

10:00 – 10:40 Refreshment break

Politecnico di Torino, 10138 Torino, Room 10i adjacent to court (<https://maps.app.goo.gl/qSW7UiWtPK4htiBZ7>)

- 10:40 – 11:45 Plenary:
Prof. Andrew Utada, University of Tsukuba, Japan
“Oil-eating bacteria are more efficient lying down” (*_1)
Chair: Alberto Tiraferri, Politecnico di Torino, Italy
- 11:45 – 12:00 Closing of IAP 2024

Politecnico di Torino, 10138 Torino, Court (<https://maps.app.goo.gl/qSW7UiWtPK4htiBZ7>)

12:00 – 14:00 Lunch to stay or to go

Poster list

Poster stands are approximately 2-m high and 1-m wide. Therefore, we suggest preparing vertical posters of A0 size (or similar size).

Please note that presentations are indicated in this program with the name of the first author and his/her affiliation as reported in the related abstract. The first author may not necessarily be the presenter.

Poster sessions in Room 12i:

- Monday, September 16, 10:15 – 10:50, set up of posters
- Monday, September 16, 17:10 – 18:00, poster session #1
- Tuesday, September 17, 12:50 – 14:30, poster session #2 (with lunch)

(c1_1) Bertozzi *et al.*, Politecnico di Torino, Italy – Valorization of spent Refreshmente grounds as soil amendment and valuable bio-additives

(c1_2) Forini *et al.*, São Paulo State University, Brazil – Supraparticles as a controlled release for fertilizers: synthesis, characterization, and fate in soil columns

(c1_3) Qin *et al.*, Crops Research Centre, Teagasc, Ireland – Unravelling Soil Chemical Changes during Cd Remediation with Lime, Zn and Spent Mushroom Compost (SMC) in Potato-cultivated Soils

(c2_1) Craveri *et al.*, Politecnico di Torino, Italy – Behavior of membrane distillation in the treatment of a diverse range of real and industrial water streams: challenges and future perspectives

(c2_2) Gyenes *et al.*, University of Szeged, Hungary – Nanofiltration of positively charged caine type local anesthetics from wastewater: performance and selective removal

(c2_3) Meo *et al.*, Politecnico di Torino, Italy – Enhancing Membrane Distillation for Water Desalination through Distributed Solar Radiation: A Numerical and Experimental Study

(c2_4) Pulido-Reyes *et al.*, EAWAG, Switzerland – Assessment of Drinking Water Treatment Processes in Nanoplastics Removal: Pilot- scale and Modelling Studies

(c2_5) Pezzano *et al.*, Politecnico di Torino, Italy – Laboratory measurement of saturated soil resistivity to assess the applicability of microbial electro-remediation in contaminated aquifers

(c2_6) Yang *et al.*, Huazhong Agricultural University, China – Prediction of cadmium bioavailability in the rice-soil system on a county scale based on the multi-surface speciation model

(c2_7) Biscalchim *et al.*, São Paulo State University, Brazil – Synthesis of magnetic beads based on alginate and chitosan for the removal of silver nanoparticles from aqueous solution

(c2_8) Sallakhniknezhad *et al.*, Politecnico di Torino, Italy – Potable water recovery from representative aqueous solutions from lunar regolith via direct contact membrane distillation (DCMD)

(c2_9) Sheikhi *et al.*, Politecnico di Torino, Italy – Performance Assessment of Filters Developed to Capture Microfibers Released during Laundering with Household Washing Machines

(c3_1) Morciano *et al.*, Politecnico di Torino, Italy – Modeling mass and heat transfer mechanisms occurring across a hydrophobic membrane in Osmotic Membrane Distillation (OMD)

(c3_2) Xiong *et al.*, Huazhong Agricultural University, China – Generic CD-MUSIC-eSGC model parameters to predict the surface reactivity of iron (hydr)oxides

(c4_1) Hering *et al.*, Federal Institute for Geosciences and Natural Resources, Germany – Floating Iron Films as a Means for the Transport of Pollutants in an Abandoned Mine Drainage Tunnel in the Harz Mountains, Germany

(c4_2) Bhatkhande *et al.*, University of Antwerp, Belgium – The effect of combined environmental stressors on *Daphnia magna* and *Brachionus calyciflorus*

(c4_3) Zihang *et al.*, University of Tsukuba, Japan – Deposition Behavior of Cellulose Nanocrystal Particles through a Packed Alumina Beads across a Various pH Range

(c5_1) Sato *et al.*, The University of Tokyo, Japan – Molecular characterization of reactive deep underground dissolved organic matters for metal ion using fluorescence spectroscopy and high-resolution mass spectrometry

(c5_2) Gibeaux *et al.*, Université Savoie Mont Blanc, France – Passive sampler chitosan/activated carbon for norovirus analysis in water

(c5_3) David *et al.*, Université Savoie Mont Blanc, France – Carbon materials for the passive sampling of soil gases

(c5_4) Maffei *et al.*, Université de Lorraine, France – On the interpretation of the time-response of luminescent bacterial sensors for mechanistic evaluations of metal bioavailability and nanoparticle toxicity in aquatic media