



Program; version 26-02-2024

International Conference 2024 (Micro-Nano) Plastics in Soil

13 & 14 March 2024, Utrecht, The Netherlands

Wednesday 13-03-2024

12 00 – 13 00 Registration, welcome coffee & sandwiches

13 00 – 13 15 Welcome and opening by the conference chairs

Petra Krystek, Deltares, the Netherlands and

Lisette Peters, Ministry of Infrastructure and Water Management, the Netherlands

13 15 – 13 25 Welcome by organizing institutions

Gerard Blom, director unit Subsurface and Groundwater Systems, Deltares, the Netherlands

SESSION 1 (Micro)plastics in soil – the broader scope and risk assessments

Chair: **Petra Krystek**, Deltares, the Netherlands

13 25 – 13 50 **OP01 Invited lecture: Microplastics in soil – an underestimated problem?**

Annegret Biegel-Engler;

German Environment Agency (UBA), Germany

13 50 – 14 10 **OP02 Plastics in the environment using mass flow analysis, including degradation, accumulation and environmental dispersion**

Anna Elisa Schwarz, Sietske Lensen, Jan Harm Urbanus, Luke Parker and Eline Langeveld;

TNO, the Netherlands

14 10 – 14 30 **OP03 Spatiotemporal variation and risk assessment of microplastic from landfill to surrounding soil-water system**

Jaswant Singha, Brijesh K. Yadava and Stefan Krause;

Indian Institute of Technology Roorkee, India & University of Birmingham, United Kingdom

14 30 – 14 50 **OP04 Risk assessment of microplastics in soils applying data alignment methods and strict quality criteria**

Bart Koelmans;

Wageningen University, the Netherlands

14 50 – 15 45 **Coffee break and opening poster session (see table of all posters on last page)**

15 00 – 15 30 Poster presenters are asked to be at their poster location for discussions

SESSION 2 Workshops as breakout sessions - parallel
(CHOICE FOR ONE WORKSHOP MUST BE MADE BY REGISTRATION)
15 45 – 17 15 (see table below)

	Topics	Organised by
WS1	Plastics in soil: From risk assessment to policy	Dr. Joris Quik , Prof. Bart Koelmans , and Lisette Peters , M.Sc.
WS2	(Micro-nano) Plastics in soil: The main analytical challenges in sampling, extraction, and analysis & testing	Prof. Stefan Krause , and Dr. Petra Krystek
WS3	Case studies: Micro-nano-plastics in “One Health” (human, animals, and ecosystems)	Dr. Hilde Aardema , Prof. Juliette Legler , and Prof. Dick Vethaak

Workshop session 1 - From risk assessment to policy
(including the following presentations)

- WS1-01 Unraveling tire wear's trail: a multi-criteria analysis of assessing risks due to microplastics on a regional scale**
Shaya Algoe, Lout Kuiper, **Sacha Raven** and Daisy Bos;
 Sweco, the Netherlands

Workshop Session 2 - The main analytical challenges in sampling, extraction, and analysis & testing
(including the following presentations)

- WS2-01 Microplastics in solid materials**
- Status on development of CEN standard on the analysis of microplastics in solid material (soil, sediment, waste)
Jaap-Willem Hutter;
 JaHu Consult, the Netherlands
- WS2-02 „Structure matters” – crucial role of physical and chemical characterization of soil nano- and microplastic**
Agnieszka Monika Dąbrowska;
 University of Warsaw, Poland
- WS2-03 Assessing the suitability of standardised tests to monitor the biodegradation of microplastics in soil**
Grace Davies, Stefan Krause, Samantha Marshall, Massimiliano Mascelloni, Iseult Lynch;
 University of Birmingham, United Kingdom
- WS2-04 An automated microplastic recognition and spectrum collection workflow based on YOLOv8**
Junhao Xie, Aoife Gowen and Jun-Li Xu;
 University College Dublin, Ireland

Workshop Session 3 - Case studies: Micro-nano-plastics in “One Health” (human, animals, and ecosystems)
(including the following presentations)

- WS3-01 Assessment of potential ecological risks of microplastics in urban farmland soils of Mabibo Bonde la Mchicha Farm, Dar es salaam**
Emmanuel Kato, Zainab Katima and Rwaichi Minja;
 University of Dar es salaam, Tanzania

- WS3-02** **Quantitative tracking of nanoplastics along the food chain from lettuce (*Lactuca sativa*) to snails (*Cantareus aspersus*)**
Laura J. Zantis, Maria Kazour, Caterina Borch, Rebecca Agati, Romain Colpaert, Frédéric Gimbert, Martina G. Vijver, Willie Peijnenburg, **Thijs Bosker**;
Leiden Universiteit, the Netherlands
- WS3-03** **Microplastics in the terrestrial environment and the scopus of the H2020 MINAGRIS project**
Esperanza Huerta Lwanga;
WUR, the Netherlands
- WS3-04** **The biodistribution and toxicity of polystyrene nanoparticles administered intravenously in the chicken embryo**
Meiru Wang, Shuhao Chen, Shixiong Cheng, Tom A. Nederstigt, Robert E. Poelmann, Marco C. DeRuiter, Gerda E. Lamers, Joost J. Williemse, Chiara Mascitelli, Martina G. Vijver, **Michael K. Richardson**;
Leiden Universiteit, the Netherlands
- WS3-05** **Nanoplastics are taken up by the bovine cumulus-oocyte-complex and hamper oocyte maturation**
J. Yang, J.H. Kamstra, J. Legler, H. Aardema;
Utrecht University, the Netherlands
- 17 20 – 17 30** **Wrap-up of day 1**
Workshop leaders and conference chairs
Petra Krystek, Deltares, the Netherlands and
Lisette Peters, Ministry of Infrastructure and Water Management, the Netherlands
- 17 30 – 18 15** **Networking drinks with poster session**
17 45 – 18 15 Poster presenters are asked to be at their poster location for discussions
- 18 15 – 20 00** **Buffet dinner**

Thursday 14-03-2024

08 45 – 09 00 **Registration and coffee**

09 00 – 09 10 **Welcome by the conference chairs**

Petra Krystek, Deltares, the Netherlands, and
Lisette Peters, Ministry of Infrastructure and Water Management, the Netherlands

09 10 – 09 35 **OP05 Invited lecture: European Commissions measures against microplastics pollution**

Silvia Forni;
European Commission Directorate-General for Environment, Belgium

SESSION 3 (Micro)plastics in soil – Agriculture and farmlands

Chair: **Hilde Aardema**, Utrecht University, the Netherlands

09 35 – 09 55 **OP06 Sources and fate of biodegradable plastics in agricultural soil**

Claire Coutris, Pierre-Adrien Rivier, Erik Joner, Anders Aas and Linn Solli;
Norwegian Institute of Bioeconomy Research, Norway

09 55 – 10 15 **OP07 Biodegradable microplastics induce profound changes in lettuce (*Lactuca sativa*) defense mechanisms and to some extent deteriorate growth traits in a mesocosm experiment**

Sylwia Adamczyk, **Laura J. Zantis**, Sam van Loon, Cornelis A.M. van Gestel, Thijs Bosker, Rachel Hurley, Luca Nizzetto, Bartosz Adamczyk and Sannakajsa Velmala;
Leiden University, the Netherlands

10 15 – 10 35 **OP08 Impact of microplastics on soil: Impact of microplastics on soil nutrients from sludge treatment in UK farmland**

Joanna Jesionkowska, Yoseph Araya, Pallavi Anand, Wesley Fraser and Peter Vale;
The Open University, United Kingdom

10 35 – 11 30 **Coffee break with poster session**

10 45 – 11 15 *Poster presenters are asked to be at their poster location for discussions*

SESSION 4 (Micro)plastics in soil – from infrastructural and surface materials

Chair: **Jacob de Boer**, emeritus professor VU and editor-in-chief *Chemosphere*, the Netherlands

11 30 – 11 50 **OP09 Microplastics in soil – do biodegradable plastics offer a solution?**

Bruno de Wilde;
Normec OWS, Belgium

11 50 – 12 10 **OP10 Potential release of microplastics from geosynthetic applications: a case study**

Daniele Cazzuffi, Simon De Meyer and Francesco Fontana;
CESI SpA, Italy , Beaulieu International Group, Belgium and A&B srl, Italy

12 10 – 12 30 **OP11 Assessment of microplastic emissions from artificial turf sports pitch**

Maria Kittner, Korinna Altmann, Sven Hamann, Rüdiger Weyer and Ute Kalbe;
Bundesanstalt für Materialforschung und -prüfung (BAM), Germany

12 30 – 12 50 **OP12 Expanded polystyrene (EPS) case study**

Bas Coolsma;
Antea Group, the Netherlands

12 50 – 14 00 **Lunch**

SESSION 5 **(Micro)plastics in soil – A closer look to different sources**

Chair: **Petra Krystek**, Deltares, the Netherlands

- 14 00 – 14 20** **OP13** **Distribution of microplastics in subsurface, sediments, river Waal, Netherlands**
Thaiënne van Dijk, Lee Haverson, Stefan Krause, Uwe Schneidewind, Liam Kelleher, Sophie Comer-Warner and Jim Best;
Deltares, the Netherlands
- 14 20 – 14 40** **OP14** **Dispersion, transformation and fate of TWP in roadside soil**
Luke Parker and Peter Tromp;
TNO, the Netherlands
- 14 40 – 15 00** **OP15** **Microplastic and microrubber pollution in road dust: unveiling the environmental footprint of urban activities in a highly developed city, Gorgan, Iran**
Nematullah Khodadadi, Arash Amini, **Reza Dehbandi** and Stefan Krause;
Golestan University, Iran & University of Birmingham, United Kingdom
- 15 00 – 15 20** **OP16** **Microplastic fate in soil: understanding transport dynamics and environmental impact across different polymer types and soil conditions**
Rozita Soltani Tehrani, Jos van Dam and Xiaomei Yang;
Wageningen University and Research, the Netherlands
- 15 20 – 15 40** **Poster price announcement and closing words by conferences chairs**
Petra Krystek, Deltares, the Netherlands, and
Lisette Peters, Ministry of Infrastructure and Water Management, the Netherlands

POSTERS

Poster nr.	Titel	Authors / presenters
P01	Diagnosis of wastewater treatment plants (WWTPs) efficiency for the treatment of microplastics (MP) in Wallonia, Belgium: methods and preliminary results	A. Joris, A. Nagant, L. Haouche, M.Vercauteren, J. Asselman, C.R. Janssen
P02	Microplastics can affect soil physical properties and microbial activity of an antarctic marine terrace	Caik O. de Miranda, José João Lelis L. de Souza, Carlos Ernesto G. R. Schaefer, Esperanza Huerta Lwang
P03	Influence of plastic waste on soil properties and microbial activity in three river basins in Serbia	Tara Grujic, Elmira Saljnikov, Slobodan Stefanovic, Marina Jovković, Goran Knezevic, Snezana Belanovic Simic, Sladjan Stankovic, Slobodan Krnjajic, Zaklina Marjanovic
P04	Exploring the microbial communities and their plastic degrading enzymatic activity patterns in extremely microplastic polluted mangrove forests	Lila Aldakheel, Diego Jimenez , Cecilia Martin, Susann Rossbach, Alexandre Rosado
P05	Microbial risks of microplastics in the environment	Douwe Maat, Michelle van Vliet, Ashley Neerings, Petra Krystek
P06	Isolation of microplastics from sewage and its qualitative analysis	Dovilė Motiejauskaitė, Karolina Barčauskaitė
P07	Fluorescence microscopy versus Raman spectroscopy for direct identification of small (< 2 μm) microplastics in soils	Nick Krekelbergh, J. Li, J. Hu, S. Sleutel, B. Parakhonsky, A. Skirtach, S. De Neve
P08	Alternative characterization method for microplastics	Kim Gommans, Désirée A.-M. Schütz, Cristian C. Escobar-Carranza, Carsten Engelhard, Petra Krystek
P09	A novel detection method of small-sized microplastics in soil by magnetic labelling	Yin Liu, Patria Novita Kusumawardani, Nick Krekelbergh, Bogdan V. Parakhonskiy, Richard Hoogenboom, Andre Skirtach, Stefaan De Neve
P10	Strategies to lower risks of false positivity and increase throughput in microplastic detection	Junhao Xie, Cihang Yang, Aoife Gowen, Jun-Li Xu
P11	Spatial distribution, characteristics, and pollution risk assessment of microplastics in sediments from Karnaphuli River Estuary, Bangladesh	Md. Refat Jahan Rakib, M. Belal Hossain,, Rakesh Kumar, Md. Akram Ullah, Sultan Al Nahian, Nazmun Naher Rima, Tasrina Rabia Choudhury, Samia Islam Liba, Jimmy Yu, Mayeen Uddin Khandaker, Abdelmoneim Sulieman, Mohamed Mahmoud Sayed
P12	Lab scale versus plant scale: microplastics in sewage sludge as potential soil contaminants and its analytical challenges	Gábor Bordós, Bence Prikler, Viktória Pitás, Réka Harasztiné Hargitai, István Szabó, Adrienn Micsinai, Sándor Szoboszlay
P13	Sewage sludge-delivered microplastics: a complex risk of the related hazardous compounds on soils	Bence Prikler, Gábor Bordós, Edit Kaszab, István Szabó, Adrienn Micsinai, Zoltán Palotai, Brigitta Nyírő-Fekete, Sándor Szoboszlay
P14	The Distribution of Pristine and Aged Low Density Polyethylene and Polyethylene Terephthalate Microplastics in Soil Aggregate Fractions	Patria Novita Kusumawardani, Diana Paola Trujillo Amaya, Nick Krekelbergh, Yin Liu, Steven Sleutel, Andre Skirtach, Stefaan De Neve
P15	Microplastics and soil health in urban agricultural land of Cameroon	Yves H. Tchichoua, Matthias Rillig
P16	Effects of polymer coated fertilizer-derived microplastics to soil health – a mesocosm experiments	Nguyen Thuy-Dung
P17	Investigating (Micro-)Plastic in Organic Fertilizers: A Two-Year Comparative Study (2022-2023)	Daniela Thomas, Elke Bloem
P18	Macro- and micro-plastic accumulation in different intensive farming systems: a case study in Quzhou county, the North China Plain	Hanyue Zhang, Xiaomei Yang, Kai Wang, Xuejun Liu, Violette Geissen, Coen J. Ritsema

P19	The influence of comminution method, oxidative aging, and exposure duration of tire wear microplastics leachate on the nematode <i>C. elegans</i>	Sefine Oksal Kilinc
P20	Plastics in soil, providing general insights into this significant environmental issue	Waliba Barnabas
P21	Microplastics in soil, groundwater and sludge on rainwater infiltration facilities	Peter Bouter, Jeroen Oosterwegel
P22	Life-cycle of microplastic wastes: waste-to-product	Ahmad Shaiful Abdul Razak, Ammar Syafiq Shariff, Mariatti Jaafar, Mohamad Danial Shafiq
P23	Spectroscopic advancements in micro- and nanoplastics Detection: Insights from soil and tissue model analyses	Kristina Duswald, Verena Karl, David Wimberger, Verena Pichler, Paul Gatteringer, Robert Zimmerleiter, Franziska Dietz, Markus Brandstetter
P24	Fluorescent labeling of nanoplastic in biodistribution studies, how to avoid misinterpretation of results.	Katarzyna Ulewicz, Patrycja Haniewicz, Yaroslava Oliinyk, Robert Hołyst
P25	Enzymatic synthesis and structural modeling of bio-based oligoesters as an approach for fast screening of marine biodegradation and ecotoxicity	Raffaele Bruschi, Anamaria Todea, Ioan Bîțcan, Marco Giannetto, Monia Renzi, Serena Anselmi, Emanuele Carosati, Lucia Gardoss