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## Newsletter July-August 2023

### Welcome to the latest news from our project

We hope this finds you well.

PlasticsFatE has had a packed six months and this issue brings you a summary of our research developments and activities. As Coordinators of the [CUSP Cluster](#) for 2023-2024, we're organising the [CUSP International Conference](#), which you can read about and register for in section [#1](#)

In [#2](#) we bring you a summary of our research developments and output over the past six months. Much of this was at the forefront of our training workshop and general assembly held in Oslo in June, kindly hosted by our partner STAMI, which you can find out more about in [#3](#). In [#4](#) you'll hear first hand from one of our Early Career Researchers about the benefits of being able to visit and engage with other project partners.

Our hardworking partners, from MSc to Post-doc level, are producing some exciting publications, described in [#5](#). You can access all the project's published results via our [Scientific Output page](#).

Meanwhile, our Scientific Coordinator, Rudolf Reuther; [Plasticheal](#) Coordinator, Alba Hernández Bonilla; and [Polyrisk](#) partner Genon Jensen have been engaging externally with Greenpeace Magazine and the World Health Organisation, respectfully; spreading the word about our work and findings ([#6](#)). External engagement and collaborations are essential to boosting the impact and sustainability of our findings, particularly with projects focusing on cross-cutting issues. You can read about some of PlasticsFatE's and CUSP's newly formed collaborations in [#7](#): they may be of relevance to you too.

Finally, in [#8](#), you'll see some positive funding news from CRC 'Microplastics' at University of Bayreuth, followed by details of a UN Environment Programme report: Chemicals in Plastics, summarising what we know so far.

If you'd like to stay in touch with PlasticsFatE's progress and activities, the ways and means are provided at the end.

Take care, and thanks for reading!

## [1](#) The CUSP International Conference, September 2023

### About the event and how to register

Planning is well underway for this year's CUSP International Conference to be held in Utrecht (NL) on Thursday 14th September, and we invite you to take part.

This event marks an important milestone to determine where we are and what challenges we still face in assessing the potential impact on human health of MNPs and associated additives and chemicals.

We'll hear from key experts in human exposure, fate, health hazards, methodologies, risk assessment approaches, standardisation, and human biomonitoring, and we'll find out about the latest results from the CUSP projects and other initiatives, including COST Action CA20101 [PRIORITY](#); [BRIGID](#) ([Plastics Europe](#)); [MINAGRIS](#); and the [MOMENTUM](#) network. A panel discussion will allow attendees to examine implications for policy, industry and regulation, with opportunities for knowledge exchanges and networking.

**CUSP**  
The European research cluster to understand the health impacts of micro- and nanoplastics

Thursday 14<sup>th</sup> September 2023  
Jaarbeurs Meetup  
Beatrix Building, Rm 315-E  
Utrecht, The Netherlands  
09:00 - 18:00 CET

### CUSP INTERNATIONAL CONFERENCE 2023

09:00	Welcome 2023 CUSP Chair & EC	12:45	Lunch
09:15	Session 1: Overview on state-of-the-art • Human exposure to microplastic in the context of risk assessment Bart Koelmans (Wageningen University) • Risk Assessment of Micro- and Nanoplastics: Current Status of Human Health Hazard Hoiger Sieg (FFP) • Tyre wear/nanoplastics release, hazards, risks and research needs Pieter van Broekhuizen (BKLE)	13:45	Session 3: Presentations from other relevant initiatives • Bridget Camilla Carteny (Plastics Europe) • MINAGRIS Violette Geiselen (Wageningen University) • MOMENTUM Juliette Legler (University Utrecht) • PRIORITY (COST Action) Stefania Federici (University of Brescia, INSTM)
10:00	Discussion	14:45	Discussion
10:30	Coffee break	15:15	Coffee break
11:00	Session 2: Results from & across CUSP • What can thermoanalytical methods do for you? Korinna Altmann (BAM) • Development and optimization of exposure biomarkers to MNPs in targeted environmental, food and human biological matrices Guyu Peng (JFZ) and Irina Estrela-Lopis (University of Leoben) • Applying existing risk assessment approaches to define the risks of micro- and nanoplastics (MNPs) to early-life health Matthew Boyles (ICM) • In vivo data on MNP toxicokinetics and toxicodynamics Cyril Bussy (University of Manchester) • Biomonitoring and human exposure studies Esther Lussen (Utrecht University)	15:45	Panel Discussion Moderator: Jane Munkce (FFP) Panelists: • Rudolf Reuther (2023 CUSP Chair) • Bart Koelmans (Wageningen University) • Camilla Carteny (Plastics Europe) • Vladimir Lobaskin (ICED) • EC Representative • NGO Representative
12:15	Discussion These projects have received funding from the European Union's Horizon 2020 research and innovation programme under the grant agreements AURORA n° 764827, IMP/TOX n° 963178, PLASTICPOL n° 965596, PLASTICFATE n° 965597, POLYRISK n° 964766	16:45	Wrap up and Outlook 2023 CUSP Chair & EC
		17:00	Networking and refreshments
		18:00	Close

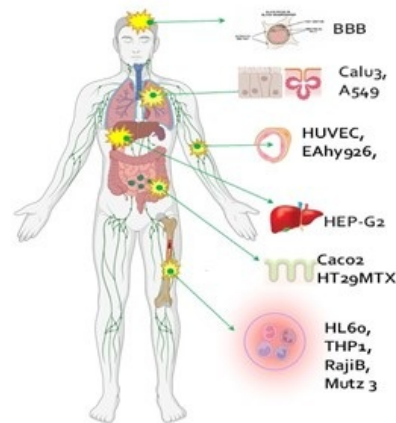
AURORA IMP TOX POLYRISK  
PlasticsFatE plasticheal

## 2 PlasticsFatE's latest research developments and achievements

### A summary of our project's progress

PlasticsFatE is well into its third year and we can look back on two years of considerable progress in our research into the impacts of micro and nanoplastics (MNPs) on human health, including:

- The development of a test material portfolio that includes “real” test materials obtained from weathering, aging, and leaching;
- The validation of a number of methods;
- A deeper understanding of exposure levels in food, air and drinking water (see right).



[Read the highlights of our work so far](#)

## 3 Highlights from our General Assembly in June, in Oslo

### Advances in hazard assessment of micro- and nanoplastics and contaminants in humans - Training Workshop

Nine Early Career Researchers from PlasticsFatE attended a training workshop organised by STAMI, which took place immediately after our General Assembly in Oslo. Eight lecturers from various research institutions within the project joined forces under the coordination of STAMI to update participants on recent advances in hazard assessment of MNPs in humans.

[More info here](#)

### PlasticsFatE Partners Team up in Oslo: Our Early Career Researchers shine in the spotlight

In what turned out to be a General Assembly highlight, a number of our Early Career Researchers presented their latest research and results.

*Below l-r:* Lara Faccani (CNR); Katharina Juengert (FAU); Maria Kazour (ULeiden); Sara Micheline (UL); Giulia Antonello (UNITO); Michelle Klein (BOKU); and Øyvind Pernell Haugen (STAMI).

[More info here](#)



## 4 Our Early Career Researchers in a win-win collaboration



### PlasticsFatE - When UNITO met Gaiker: a perfect match

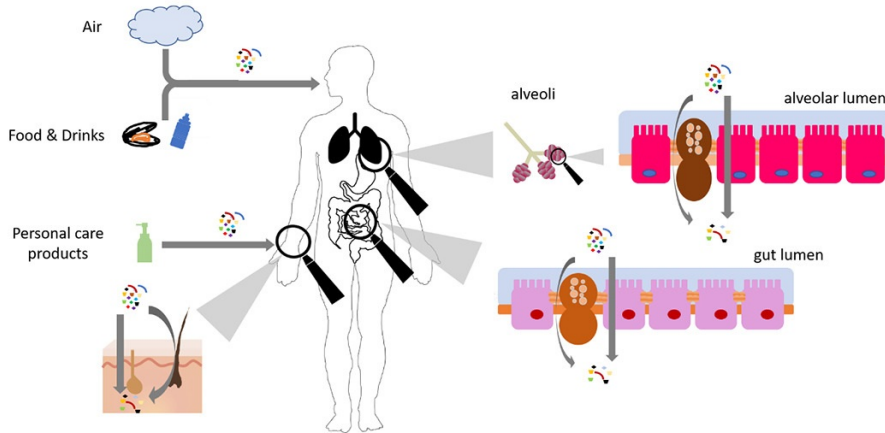
In this article, Giulia Antonello (UNITO, IT), a PhD student, describes how she has found that PlasticsFatE is not only about research but also career development and collaboration. She explains how her doctoral thesis focuses on the evaluation of the toxicity of micro and nano materials, in particular at the intestinal level, through the use of advanced in vitro models, and how it's a perfect fit with Gaiker's activities in PlasticsFatE.

[Read Giulia's news article](#)

## 5 Spotlight on recent research and publications

### Microplastics in human tissue samples: International study warns against premature conclusions

MP exposure via:



The distribution of microplastics and nanoplastics in the environment, the potential of human exposure and particle uptake, and the absorption of these particles into tissues are topics that are being intensively researched worldwide.

PlasticsFatE partners at the University of Bayreuth under the leadership of Prof. Dr Christian Laforsch have evaluated international research literature on these issues. The results presented in the journal "NanolImpact" show that concerning the risks for humans, the evidence is less certain than the broad spectrum of publications might suggest.

"The reported results should be read and interpreted critically", says first author and Bayreuth doctoral student Anja Ramsperger (M.Sc.).

[Read the news article](#)

Anja F.R.M. Ramsperger et al.: Nano- and microplastics: a comprehensive review on their exposure routes, translocation, and fate in humans. NanolImpact 29 (2023) 100441. DOI: <https://doi.org/10.1016/j.impact.2022.100441>

### New research output: Microbial colonization and associated health risks.

PlasticsFatE has just published a summary of work performed by Jaffer Yousof Dar, a PhD Student from the Aquatic Microbial Ecology group at Leibniz Institute for Freshwater Ecology and Inland Fisheries, IGB, led by Prof. Dr. Hans-Peter Grossart, on Zenodo.

### CEA researchers show the presence of proteins encourages the dispersion of microplastics.

Our project's researchers at CEA, along with external colleagues, have shown that microplastics from our waste are dispersed in water by proteins adsorbed to their surface.

This discovery opens the way to low-tech strategies for collecting them.

[More info here](#) | [Download the paper here](#)

[More info here](#) | [Download the paper here](#)



**Microbial colonization and associated health risks**

A summary of work performed by Jaffer Yousof Dar, a PhD Student from the Aquatic Microbial Ecology group at Leibniz Institute for Freshwater Ecology and Inland Fisheries, IGB, led by Prof. Dr. Hans-Peter Grossart

**Background**

The surface of microplastics (MPs) offers a high-microbial cell density and increased nutrient availability, making "hot spots" for microbial colonization in the aquatic ecosystem. This colonization can include toxic pathogens, or invasive species. Since MPs can be transferred over long distances in aquatic environments, freshwater and saltwater systems combined, they may act as efficient vectors for selecting and spreading pathogens and other harmful organisms. One concerning aspect is that MPs can facilitate the horizontal gene transfer (HGT) of genetic material among microorganisms, HGT is a mechanism by which genetic information, such as antibiotic resistance genes (ARGs), can be transferred between different species of bacteria. This process plays a significant role in the spread of antibiotic resistance, which poses a serious threat to human and environmental health.

In this context, we are studying the microbial colonization and potential transfer of ARGs on the surface of different plastic types, including low-cost particles (LCPs). This particular, is necessary due to its omnipresence, which includes heavy metals. These heavy metals present in LCPs could contribute to the acquisition and dissemination of ARGs, further exacerbating the issue of antibiotic resistance.

**The creaming is governed by**

**Particle properties**

- Size
- Density
- Hydrophobicity

**Protein corona**

- Wettability
- Steric hindrance
- Electrostatic repulsion

## 6 Our Coordinators spread the word

### Our Scientific Coordinator, Rudolf Reuther, speaks to Greenpeace Magazine

In a recent interview with Greenpeace Magazine in Germany, our Scientific Coordinator - Rudolf Reuther - explains what we know about MNPs when they enter our bodies and summarises the current science.

[Read the news item](#)

### CUSP at the WHO Europe Ministerial Conference on Environment and Health

CUSP projects [Polyrisk](#) and [Plasticheal](#) participated in the WHO MCEH event to highlight our projects and how research into micro- and nanoplastics can benefit future policy action to end pollution and protect health.

[Read the news item](#)





## 7 Forming new external collaborations

**Collaborations with PlasticTrace and ILSI to improve understanding of MNPs for food safety.**

PlasticsFatE is happy to announce that we are forming new collaborations with [PlasticTrace](#) and the [ILSI MP network](#).

[Find out more](#)

**CUSP and EDIAQI - an IDEAL collaboration to understand the effect of MPs on indoor air pollution.**

[CUSP](#) and the [EDIAQI](#) project have joined forces to standardise microplastic measurement in indoor environments.

[Find out more](#)



## 8 Some final news items of interest

**CRC 'Microplastics' at University of Bayreuth gets extended funding from German Research Foundation (DFG)**

The German Research Foundation (DFG) will again fund the [Collaborative Research Center 1357 'Microplastics'](#) at PlasticsFatE partner University of Bayreuth with approximately 13 million euros over the next four years. This article underlines the importance of the center's work and future projects.

[Read more](#)

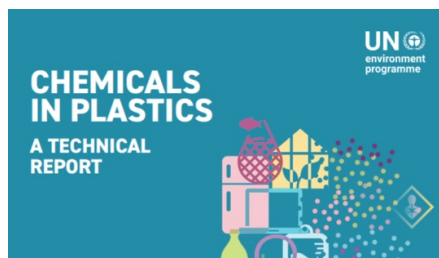
**UN Environment Programme publishes report: Chemicals in Plastics, summarising what we know so far**

The UN Environment Programme has recently published a report that provides a succinct overview of our knowledge on chemicals in plastics. The report draws on robust and compelling scientific evidence in a call for action to address the issue of plastic pollution, and specifically chemicals in plastics.

[Read more](#)



Prof. Dr Christian Laforsch – Collaborative Research Centre (SFB) Mikroplastik



## Stay up to date with PlasticsFatE

This brings us to the end of this edition, but there is plenty more project news on our [home page](#), and external news feeds related to MNPs on our [news feeds page](#). We hope you've found this issue of interest. Please send any comments and content suggestions [here](#).

If you'd like to sign up for our newsletter, receive invitations to events, workshops and conferences, and keep up to date with project developments, please use the QR code or go to our [contacts page](#).

You can also follow us on X(Twitter), LinkedIn and YouTube.





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