

CRC 1357 Microplastics PhD Symposium 2025: Where Land met Sea

In the second week of October, the PhD group of the CRC 1357 Microplastics ventured to northern Germany for productive scientific discussions, to master international teamwork, and reflect about the future.

Shared knowledge is knowledge multiplied

This year's PhD Symposium was a special event. For the first time since the beginning of its first phase, 6 years ago, the CRC 1357 Microplastics (CRC MPs) joined the Alfred Wegener Institute (AWI) in Bremerhaven to share knowledge on microplastic research, visit some of the AWI's laboratories, and network.

The AWI was founded in 1980 as the Alfred Wegener Institute for Polar Research foundation. It was initially created to support research in the Antarctic, as the Federal Republic of Germany signed the International Antarctic Treaty of 1959 in 1979. The AWI developed quickly, reaching milestones such as the Antarctic station and the *Polarstern*, before fusing with the Institute for Marine Research in Bremerhaven in 1986 to expand their research topics. Today, with 45 years of research, it hosts a wide range of scientists from polar research to climate change and microplastics. We, from the CRC 1357 Microplastics, were allowed the opportunity to visit the AWI and meet some of their top researchers. For more about the AWI's history, click [here](#).

In a workshop titled "Land meets Sea", the AWI researchers Dr. Gunnar Gerdts, Dr. Melanie Bergmann, Dr. Daria Bedulina, Dr. Gisela Lannig, Dr. Lukas Miksch, and Tomás Garcia presented key findings of their research, which stimulated fruitful discussions among attendees. Dr. Gunnar Gerdts, who was essential for connecting us with the AWI, talked about his experiences in microplastics research and even provided some recommendations to our young scientists. He explored in detail the methods applied in his studies, including sampling, extraction, and purification, and as well as topics such as reference database design, chemometrics, and machine learning.



Presentations at the scientific workshop Land meets Sea

The talks covered a variety of subjects within the microplastics universe. Dr. Melanie Bergmann lectured about the discovery of plastic pollution in the Arctic, presenting shocking data that 41% of marine debris is plastic and that 45% of the plastic marine debris interact with the megafauna. Besides the fact that there is a very high concentration of microplastics in snow. Furthermore, she talked about citizen science and collaboration with cruise tourists in the Arctic, and how the negotiations for the Global Plastic Treaty are going.

Dr. Daria Bedulina, Dr. Gisela Lanning, and Dr. Lukas Miksch also gave some interesting talks. Dr. Bedulina brought an overview of polymers, additives, and their impacts on organisms. She also spoke about her involvement in the multidisciplinary project P-LEACH and the importance of activism. Dr. Lanning presented a case study about microplastics erosion from the rotor blades of Offshore Wind Farms, their emissions to the environment, and potential impacts. Dr. Lanning was accompanied by her PhD Tomás Garcia, who also presented a case study of multiple stressors (heatwaves and plastic leachates) on *Littorina littorea*, the common periwinkle. Dr. Miksch, who is involved in the Bioplastics Europe project, discussed the enzymatic degradation of bioplastics and the role of marine invertebrates.

Additionally, some of our CRC PhDs also shared their work. Myriam Younes and Rizwan Khaleel talked about behavior and transport of microplastics in the atmosphere and in floodplain soils. Gwen Büchner and Kai Gossen presented about uptake and effects of microplastics in organisms in cellular and organismic levels. Ana Leticia Antonio Vital and Éverton Souza da Silva explored the use of machine learning for prediction of microplastic effects. And, finally, Anika Mauel and Ashank Upadhyay talked about plastic degradation and developing solutions.

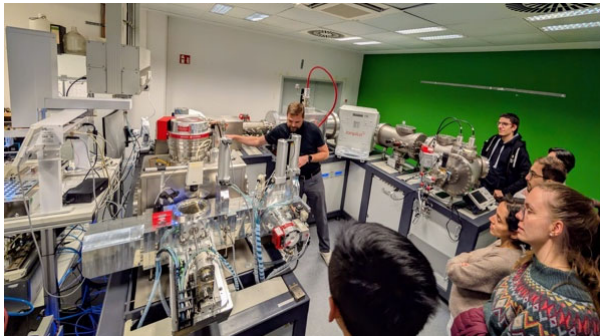
Furthermore, attendees had the opportunity to visit a few laboratories at the AWI. Dr. Christian Bock, biophysicist and head of the section Integrative Ecophysiology, gave a tour of the in vivo NMR laboratory. Dr. Joachim Henjes, vice head of the Aquaculture Group, showed the Centre for Aquaculture Research. And, Dr. Torben Gentz, from the C-14 Dating laboratory, presented the scientific instrument for radiocarbon dating by accelerator mass spectrometry.



Visit to the NMR Laboratory



Tour at the Centre for Aquaculture Research



Visit to the Mass Spectrometry Laboratory

Beach clean-up action!

As science can also galvanize practical action, CRC PhDs were ready to go outside their laboratories and offices to bring positive impact with the clean-up at the Cuxhaven Beach. This initiative came with the support of the *Abfallberatung* of the city of Bayreuth through the *Abfallwirtschaft* Department, who provided the necessary equipment (e.g. litter-picking stick, vests) that made the event possible. Beyond that, this litter-picking action was further endorsed by the responsible entity for the *Nordseeheilbad Cuxhaven*, who provided us with a permit which allowed free entry to the area.



CRC 1357 Microplastics PhDs during the clean-up action at Cuxhaven Beach

This was a really extraordinary moment, not only because of the positive environment impact, but also because it was the first time some of our PhDs saw the sea. And what a wonder! The beauty of the North Sea! This activity enhanced team building, gave us beautiful memories, and allowed positive change!

Mastering skills and future outlook

The gathering of our very international team at the PhD symposium was also a perfect opportunity to and improve our communication skills and learn more about working in an international group. Therefore, we invited Dr. Iris Wangermann, a certified intercultural psychologist and workshop facilitator, to lead a soft skills workshop.



Workshop Mastering International Skills

This was such a fun moment! The workshop was very dynamic. We were able to talk about culture with many different people from a variety of places, as the group activities sorted us in different groups every time. It was interesting to hear a diverse range of perspectives and realize that culture is something multidimensional, and how it plays a role at the workplace. We learned the importance of communicating clearly across cultures. and Dr. Wangermann also gave tips on how to effectively engage with our coworkers, understanding their background and where they come from. A key take-home message was that by being empathic and discerning, we can achieve effective communication.

alike. This was the perfect closing for the PhD Symposium, giving us the chance to reflect about our roles as scientists and as human beings, and how we are all connected.



Start of the tour at the Klimahaus

A feeling called gratitude and a new beginning

This year's PhD Symposium was a big challenge which was only made possible due to the work and efforts of many people. I would like to thank Dr. Melanie Pöhlmann for always being a lighthouse guiding us through this process and helping us to ensure that everything went smoothly. Gratitude is also owed to our 2025 Orga Team for boarding on this ship to organize this event, as we aimed to sail to Bremerhaven, and for being so present and proactive before and during the event. So, many thanks to Anika Mauel, Bashir Ayinde, Éverton Souza da Silva, Lisa Jagau, Myriam Younes, Marco La Capra, Mirza Becevic, and Sulari Anthony! As we leave the Bremerhaven Harbor, it is time that Lisa and I, Éverton, close a chapter as PhD Speakers and welcome the new PhD Speakers of the CRC MPs: Gwen Büchner, Leon Gröschel, and Onur Turak. Best of luck to you and to the new PhD Symposium Orga Team!



Old and new Orga Team of the CRC 1357 Microplastics PhD Symposium. Left to right: Jona Schmidt, Bashir Ayinde, Jan Bollman, Marco La Capra, Johanna Fritsche, Gwen Büchner, Anika Mauel, Lisa Jagau, Leon Gröschel, Myriam Younes, and Éverton Souza da Silva.

Even though we said good-bye to Bremerhaven for now, we carry with us unforgettable memories, the feeling of unity, and how transformative the power of science is. As Marie Curie once said, "I am among those who think that science has great beauty".

By Éverton Souza da Silva