

# 1. Bayreuth Microplastics Symposium 2020

02.03.-03.03.2020

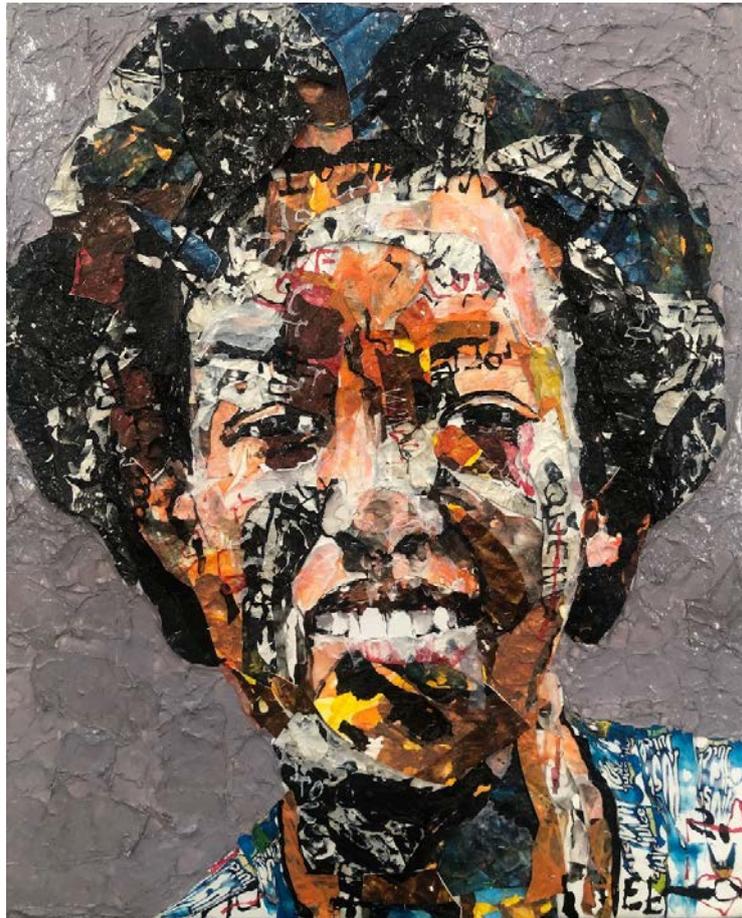
H 24, RW I, Universität Bayreuth





# 1. Bayreuth Microplastics Symposium

02. – 04. March 2020, H24, RWI, University of Bayreuth  
and Iwalewahaus, Wölfelstraße 2, Bayreuth



Title: Queen (Portrait) Mbongeni Buthelezi's wife – Plastic on Plastic Collage.  
Material: Coloured Plastic Waste collected in the environment (2019).

## Monday 02.03.2020 – Opening & Get Together

- 16:00 Opening Note  
*Prof. Stefan Leible, President University of Bayreuth*
- 16:10 Welcome Note  
*Prof. Christian Laforsch, Speaker SFB1357 Microplastics, University of Bayreuth*
- 16:20 Keynote  
Microplastics in the oceans: are there solutions to this global environmental challenge?  
*Prof. Dr. Richard Thompson, Plymouth University, UK*
- 17:30 Get Together with Fingerfood and Drinks, Foyer RW I



## Tuesday 03.03.2020

- 9:00 Welcome and Introduction to the Collaborative Research Centre on Microplastics (SFB1357)  
*Christian Laforsch, Speaker SFB1357 Microplastics, University of Bayreuth*
- Introduction Stefan Krause: Sven Frei*
- 9:15 River corridors as global hotspots of microplastic pollution  
*Stefan Krause, Ecohydrology and Biogeochemistry, University of Birmingham, United Kingdom*
- Introduction Thorsten Hüffer: Martin Obst*
- 09:45 Interactions of microplastics with organic compounds in the environment - particle aging, sorption and desorption  
*Thorsten Hüffer, Environmental Geosciences, Universität Wien, Austria*
- 10:30 Coffee & Tea, Foyer RWI**
- 11:00 A – Projects: Biological effects  
*Heike Feldhaar, Animal Ecology I, University of Bayreuth*
- 11:15 B – Projects: Environmental behavior and migration in and between ecosystems  
*Stefan Peiffer, Hydrology, University of Bayreuth*
- 11:30 C – Projects: Mechanisms of degradation of plastics in natural and technical systems  
*Seema Agarwal, Macromolecular Chemistry II, University of Bayreuth*
- 12:00 Lunch Foyer RWI**
- Introduction Bruno de Wilde: Seema Agarwal*
- 13:00 Biodegradation: one principle, many nuances  
*Bruno de Wilde, OWS, Gent, Belgium*
- Introduction Michael Sander: Stefan Peiffer*
- 13:30 Biodegradable polymers: What I think they are and what I think we shouldn't think they are!  
*Michael Sander, Environmental Chemistry, ETH Zürich, Switzerland*
- Introduction Wendel Wohlleben: Andreas Greiner*
- 14:00 Implications of the debate & restriction for materials & processes  
*Wendel Wohlleben, Senior Principal Scientist: Characterization of Colloidal Systems, BASF, Germany*
- 14:45 Coffee & Tea**
- Introduction Dietmar Schlosser: Marcus Horn*
- 15:15 Microbial degradation of conventional plastics: opportunities, limitations and a fungal perspective  
*Dietmar Schlosser, Environmental Mycology, UFZ Leipzig, Germany*
- Introduction Ulf Stein: Christian Laforsch*
- 15:45 The BMBF Research Focus "Plastic in the Environment – Sources • Sinks • Solutions"  
*Ulf Stein, Institute of Ecology, Berlin, Germany*
- 16:00 Closing and Lab Tour at the Collaborative Research Centre Microplastics SFB1357
- 19:00 Dinner, Restaurant Sudpfanne, Bayreuth**



Wednesday 04.03.2020



Title: Sugar Tax – Plastic on Plastic Collage. Material: Coloured plastic waste collected in the environment.  
Copyright: Mbongeni Buthelezi

08:00 -13:00

**Art meets Science...from Plastic to Microplastics**

Art Exhibition and Art Workshop with the south African artist Mbongeni Buthelezi  
SFB Microplastics Science Rally in cooperation with the team of Prof. Marco Beeken, University of Osnabrück  
*Iwalewahaus, Wölfelstraße 2, Bayreuth*

18:00

**Bayreuther Stadtgespräch (Public Talk in German)**

Das Kunststoffzeitalter: Unsachliche Berichterstattungen zum Thema Mikroplastik verunsichern Verbraucher. Was Forscher wirklich (nicht) wissen und zukunftsweisende Lösungsansätze  
*Prof. Dr. Christian Laforsch, Iwalewahaus, Wölfelstraße 2, Bayreuth*

19:30

**Kunstauktion / Art auction, Iwalewahaus**

Three associations and one project! Bayreuth artists donate their artworks to support an organized childcare for international visiting guest scientists. This event will take place after the SFB 1357 Microplastic events and is organized by *Wir helfen in Bayreuth, der Internationale Club der Universität und der Kunstverein.*

**Cover Picture:** Title: *Thandeka – Plastic on Plastic Collage.* Material: Coloured plastic waste collected in the environment. Copyright: Mbongeni Buthelezi



## Keynote Speaker 1<sup>st</sup> Bayreuth Microplastics Symposium



### KEYNOTE

**Prof. Dr. Richard Thompson**

Director of the Marine Institute,  
School of Biological and Marine Sciences,  
University of Plymouth

*Thompson is one of the foremost experts on marine plastic pollution in the world, leading the University of Plymouth's International Marine Litter Research Unit and co-authoring the EU Marine Strategy Framework Directive text on marine litter. With over 170 publications on the subject, his work has gained international recognition, leading him to receive an OBE for services to marine science in the 2019 New Year Honours List.*

*Richard Thompson moved to Plymouth to take up his first permanent academic position as lecturer in Benthic Ecology in January 2001. Previously, during postdoctoral positions (at Newcastle and Southampton) he had become intrigued by the quantities of small plastic debris accumulating in some of his experiments on the shoreline. As a consequence of voluntary work co-ordinating beach-cleans for the UK Marine Conservation Society he had also realised that substantial quantities of small plastic fragments were being overlooked by standard marine litter surveys. Shortly after arriving at Plymouth he secured funding to describe and quantify these fragments (Leverhulme Trust Pilot Grant, Principal Investigator Thompson, 2001-2002) and with colleagues at Plymouth he quickly established that sub-millimetre sized fragments of plastic were widespread in sediments and in the water column in the north-east Atlantic. Using archived plankton samples his team went on to show that the abundance of this material had more than doubled over the previous 40 years, mirroring trends in plastic production, and that a range of marine organisms could ingest these fragments. In 2004 he published a paper in the journal Science, which summarised the findings and described the fragments using, for the first time, the name 'microplastic', (Thompson et al. 2004; 90% of this work was done at Plymouth University).*

*Having described this new form of contamination, Thompson, then a Senior Lecturer in Marine Ecology, together with Prof. Rowland and Dr Galloway (all Plymouth University) secured further funding from the Leverhulme Trust (principal investigator Thompson, 2003-2007) to quantify microplastic contamination and examine the potential environmental consequences. They supervised PhD student Browne and Research Assistants Niven and Teuten at Plymouth University. Teuten used radio-labelled contaminants and an in-vitro modelling approach to show that minute quantities of microplastics (parts per million) had the potential to increase uptake of a persistent organic pollutant to deposit feeding worms (Teuten et al. 2007; 100% of the work for this paper was done at Plymouth University). Building on Thompson's earlier work, which had shown that a range of invertebrates could ingest microplastics (Thompson et al. 2004), Browne used laboratory experiments to show that, after ingestion by the commercially important mollusc (*Mytilus edulis*), microplastics translocated from the gut to the haemolymph where they could be retained for more than 40 days (Browne et al. 2008; 90% of the work for this paper was done at Plymouth University). The team established that microplastics originated from various sources; including the fragmentation of larger items together with waste water from domestic washing machines, and showed that these particles were now an important component of marine debris on shorelines worldwide (Browne et al. 2010, 2011; 100% and 90% respectively of the work for these papers was done at Plymouth University).*



## Invited Speakers 1<sup>st</sup> Bayreuth Microplastics Symposium



**Dr. Thorsten Hüffer**

Senior Scientist, Research Faculty  
Deputy Head of Department  
University of Vienna, AT  
Centre for Microbiology and Environmental Systems Science  
EDGE - Environmental Geosciences

*Thorsten Hüffer is Senior Scientist at the Department of Environmental Geosciences at the University of Vienna, Austria. He obtained his PhD in Analytical Chemistry in 2014, from the University of Duisburg-Essen, Germany focusing on investigations into the fate and transport of carbon-based nanomaterials. His research on microplastics has emphasized on sorption and desorption processes of microplastics and tire materials, as well as aging of microplastics and its impacts on particles properties. He is also head of the expert committee on "Plastics in the aquatic environment" within the German Water Chemistry Society.*



**Prof. Stefan Krause**

Chair of Ecohydrology and Biogeochemistry  
School of Geography, Earth and Environmental Sciences  
University of Birmingham, Birmingham, UK

*Prof. Stefan Krause is the Chair for Ecohydrology and Biogeochemistry at the University of Birmingham, UK and Invited Visiting Professor at the University Lyon 1, France. As Director of the Birmingham Water Council and Head of the Water Challenges theme of the Institute of Global Innovation at Birmingham he leads the development of interdisciplinary water research across all Colleges of the University. His research team is developing novel sensing and modelling approaches for analysing emerging and legacy pollutants in the environment. As leader of the 100 Plastic Rivers network he is coordinating the establishment of a global freshwater plastic database and integrated model.*



**Dr. Michael Sander**

Department of Environmental Systems Science  
Institute of Biogeochemistry and Pollutant Dynamics  
ETH Zürich, Suisse

*Michael Sander received his B.S. and M.S. degrees (i.e., Vordiplom and Diplom) in Geoökologie (Environmental Sciences) from the University of Bayreuth (Bayreuth, Germany) in 1997 and 2000, respectively, and his Ph.D. in Chemical Engineering (focus: Environmental Engineering) from Yale University (New Haven, USA) in 2005. Following postdoctoral research with Prof. René Schwarzenbach at ETH Zurich (Environmental Chemistry, Institute of Biogeochemistry and Pollutant Dynamics) from 2005 to 2007, he became research group leader (Oberassistent) in 2008. Michael Sander was promoted to the position of a research group leader (permanent position) in 2013 and senior scientist (permanent position) in 2017, both in the research group of Environmental Chemistry at ETH Zurich.*



**Dr. Dietmar Schlosser**

Head of Group Environmental Mycology  
Department of Environmental Microbiology  
Helmholtz Centre for Environmental Research - UFZ  
Leipzig, Germany

*Dietmar Schlosser has been a senior scientist and group leader at the Department of Environmental Microbiology of the Helmholtz Centre for Environmental Research - UFZ since 2005. After receiving his Diploma and Ph.D. in microbiology from the Friedrich Schiller University of Jena, Germany, he continued working at this university as a postdoctoral researcher and scientific assistant at the Chair of Applied and Ecological Microbiology. In 2000, he was appointed a junior research group leader at the Helmholtz Centre for Environmental Research - UFZ. His research interests include the physiology, biochemistry and enzymology of different types of terrestrial and aquatic fungi with respect to the degradation of xenobiotic and natural organic compounds, the influence of fungi on the environmental fate of organic pollutants, and the exploitation of fungi in environmental biotechnology.*



**Dr. Ulf Stein**

Ecologic Institute Berlin  
Berlin, Germany

*Dr. Ulf Stein studied landscape planning and nature conservation at Leibniz University Hannover (Germany), the University of Guelph (Canada) and the KVL (Denmark). He holds a Dr.-Ing. degree from University of Kassel (Germany) where he worked as a junior researcher in the field of freshwater ecology for four years. Today he is a Senior Fellow at Ecologic Institute in Berlin, where he coordinates the institute's water activities. He joined Ecologic Institute in 2011 and has more than 10 years of professional experience in academic research and consulting services. His work focuses on the evaluation and enhancement of the European Union's (EU) and German water policies and the sustainable management of water resources, particularly with respect to plastics in the environment, climate change adaptation, aquatic biodiversity and ecosystem services, and environmental governance.*



**Bruno De Wilde**

Organic Waste Systems OWS  
Gent, Belgium

*Bruno De Wilde is the Laboratory Manager of Organic Waste Systems (OWS) in Ghent, Belgium for whom he has worked for more than 30 years already. In this capacity, he manages biodegradation, composting and digestion tests and consultancy services as well as waste analyses and inspection activities, supervising a team of 80 people. Bruno De Wilde has authored or co-authored about 30 scientific articles. Besides he is an active participant of several ISO and CEN working groups in this field and each year gives about 10 presentations on this topic at international conferences and company workshops. He also works as an expert on biodegradable plastics for the European Commission. He took his MSc in Agricultural Engineering at the State University of Ghent in 1983, spent another year in the Laboratory of Microbial Ecology and then worked in an R&D project on making energy from biomass through biogasification in Indonesia for 4 years prior to joining Organic Waste Systems.*



**Wendel Wohlleben**

Characterization of Colloidal Systems  
Department of Material Physics  
BASF, Germany

*Wendel Wohlleben is Senior Principal Scientist for Characterization of Colloidal Systems at BASF, Dept. of Material Physics, second affiliation with Dept. of Experimental Toxicology and Ecology. Research projects on advanced materials development and on the safety of materials containing or releasing particles (h-index 46). Studied physics (minor: chemistry) at the University Heidelberg and at the Ecole Normale Supérieure in Paris. PhD in 2003 from LMU Munich with a biophysical thesis on energy harvesting in photosynthesis, performed at the Max-Planck-Institute for Quantum Optics. Post-doc at Physical Chemistry, University Marburg. Visiting scientist relations at Dept. of Materials and Interfaces, Weizmann Institute, Rehovot and at Harvard TH Chan School of Public Health, Boston.*



**Mbongeni Buthelezi**

Artist working with Plastic collected in the environment  
Johannesburg, South Africa

*Mbongeni Buthelezi, born 1966 in Johannesburg in South Africa, is an artist who became known for "painting" in plastic. The material that Mbongeni Buthelezi uses for his "paintings" is always waste made of plastic: he cuts it into little pieces and glues them onto the canvas, creating surfaces and structures with subtle and changing tones and colours. The use of such material shows Buthelezi's awareness of environmental problems and the physical decay of the townships as well as the references to general social and political impoverishment and flaw of opportunities and alternatives that he observes in South Africa. Through his work, Buthelezi wants to mediate and communicate hope. He is convinced that seeing his works and his history, people are able to realise that in South Africa there are many opportunities, too, and that it is possible to create a better life and a career out of nothing; making art would enable people to change their lives and to contribute something positive to the world. Buthelezi's works have been exhibited internationally, including the Museum of African Art in New York, the Goch Museum in Germany as well as the Prague Biennale.*

*From 27th February 2020 until 4th March 2020 the science meets art ...from plastic to microplastic event takes place at the Iwalewahaus in Bayreuth, a joint event between the SFB Microplastics, Mbongeni Buthelezi an artist in residence at the Iwalewahaus and Prof. Marco Beeken, Didactics of Chemistry, University of Osnabrück.*





## Important Addresses

### Hotels

#### Hotel Rheingold (1)

Austraße 2, 95445 Bayreuth

[Link](#)

#### Bayerischer Hof (2)

Bahnhofstraße 14, 95444 Bayreuth

[Link](#)

#### B&B Hotels (3)

Dilchertstraße 1, 95444 Bayreuth

[Link](#)

#### Apart Hotel First Boarding (4)

Nürnbergger Str. 32, 95448 Bayreuth

[Link](#)

### Symposium Locations

#### Symposium Universität (5)

H24, RWI, Universität Bayreuth

Universitätsstraße 30, Bayreuth

[Link](#)

#### Art meets Science Event (6)

Iwalewahaus

Wölfelstraße 2, Bayreuth

[Link](#)

#### Dinner (7)

Restaurant Sudpfanne

Oberkonnersreuther Str. 6,

Bayreuth

[Link](#)

### Shuttle Service

For invited speakers and external SFB members we have organised 2 UBT shuttle busses á 9 persons.

#### Monday:

Hotel – Symposium

Symposium – Hotel

#### Tuesday:

Hotel -Symposium

Symposium –Dinner

Dinner –Hotel

#### Wednesday:

Hotel – Campus

Campus - Iwalewahaus

