

E. Marie Muehe, PhD

Helmholtz Centre for Environmental Research
Department of Applied Microbial Ecology

University of Tübingen
Department of Geosciences

RESEARCH INTEREST

My research examines how plant roots interact with the biotic and abiotic components of soils to regulate key biogeochemical processes. I focus on rhizosphere dynamics in agroecosystems and phytoremediating plants under soil contamination and a changing climate, linking micrometer-scale reactions at the root–soil interface to field-scale outcomes for soil health, crop quality, and ecosystem resilience. By revealing mechanisms that govern pollutant mobility, nutrient cycling, and carbon stabilization, my work supports strategies for environmental sustainability, climate-change mitigation, and the long-term remediation and productivity of agricultural soils.

RESEARCH EXPERIENCE

Deputy department head of the Department Applied Microbial Ecology, UFZ, Germany	2024 – current
W1 Junior Professorship University of Tübingen, Department of Geosciences, Germany	2022 – current
Parental leave	2021 – 2022
Helmholtz Young Investigator Group Leader: Plant Biogeochemistry Helmholtz Center for Environmental Research, Department Environmental Microbiology, Germany	2020 – current
Parental leave	2019 – 2020
Affiliated with the Ithaka Institute for Carbon Intelligence as scientific advisor An international open source non-profit research network for carbon sequestration strategies and cycling through agronomic methods	2018 – current
Marie Skłodowska-Curie and German Research Foundation Postdoctoral Fellow Stanford University, Department of Earth System Science, USA With a one-year return phase to the University of Tübingen, Germany <i>Impact of Climate Change on the Uptake and Accumulation of Arsenic in Rice</i>	2015 – 2018 2018 – 2019
Postdoctoral Scholar University of Tübingen, Center for Applied Geosciences, Germany <i>Biologically-Mediated Recovery of Precious Metals from Household Incineration Waste</i>	2014 – 2015

EDUCATION

Ph.D. in Environmental Sciences – <i>summa cum laude</i> University of Tübingen, Center for Applied Geosciences, Ruhr University Bochum, Plant Physiology, Germany <i>Plant-Microbe-Soil Interactions in Metal(loid)-Contaminated Environments</i>	2009 – 2014
Environmental Volunteering Service – Cape Town, South Africa Zeekovlei Environmental Education Center and Rondevlei Nature Preserve	2008 – 2009
Master of Science in Biology – grade 1.1 University of Tübingen, Plant Physiology and Microbiology, Germany <i>Response of Rice Plant (<i>Oryza sativa</i> L.) to Arsenic-Contaminated Water and Fe(II)-Oxidizing Bacteria</i>	2001 – 2008
Study Abroad Program – Oregon State University, USA	2004 – 2005
A-levels – Tettenhall College, UK	1999 – 2001

HIGHLIGHTS

Listed professorships:

2019: declined offer for assistant professorship for soil sciences at Wisconsin-Madison, USA

Awarded Funding: € 4,554,703

Publications: 29 published, 1 book chapter, (1734 total citations, H-Index: 15)

Teaching Training: Stanford Teaching Certificate for Postdocs

Students (co) Supervised: 19 PhD, 17 Master Students, 12 Bachelor Students, 33 student interns, 5 guest researcher

Conference Contributions: (Presenting author only): 27 invited oral, 2 panel discussions, 13 convener, 37 oral, 13 posters

Honors and Awards:

- Nominated for the **Gips-Schüle Research Award 2019**
- **Baden-Württemberg Foundation's Elite Program for Postdocs** for Leading Early Career Researchers
- Selected for the **Leadership Academy of the German Scholars Organization e.V.**, 2018/2019
- Participation as Young Scientist at the **Lindau Nobel Laureate Meeting**, 2015
- Medalist of the **German Dissertation Award** (Science) (Koerber-Foundation), 2014
- **Outstanding Dissertation Award**, University of Tübingen, 2014
- Medalist for the **BIOTECHNICA study award for master theses**, 2008

Public Recognition and Outreach of Work:

- German Southwest Radio interview on climate change impact on cadmium mobility in soils, 2024
- Radio interview "Gesundheitsgefahr: Arsen im Reis" in the German Southwest Radio, 2019
- German-wide TV documentary: "Arsen – the creeping killer", 2016, synchronized into English, 2017
- TV report in the German Southwest Radio on PhD thesis, 2014
- Press release on the microbial remediation of cadmium-contaminated soils, 2013