



Dr. Sara König

born May 9, 1988 in Mettmann, Germany

Education

- 11/2012 – 07/2016 **PhD in Environmental Modelling**, Faculty Mathematics/Informatics, Osnabrück University, Germany
- 04/2011 – 09/2012 **MSc Environmental Systems and Resources Management**, Institute of Environmental Systems Research, Osnabrück University, Germany
- 09/2007 – 03/2011 **BSc Applied System Science**, Institute of Environmental Systems Research, Osnabrück University, Germany

Research experience

- since 06/2018 **Postdoctoral Researcher**, Department Soil System Science, BonaRes Centre for Soil Research, Helmholtz Centre for Environmental Research - UFZ, Leipzig, Germany
- 08/2016 – 05/2018 **Postdoctoral Researcher**, Department Ecological Modelling, WG Microbial Ecosystem Analysis, Helmholtz Centre for Environmental Research - UFZ, Leipzig, Germany
- 11/2012 – 07/2016 **PhD Student**, Department Ecological Modelling & Department Environmental Microbiology, Helmholtz Centre for Environmental Research - UFZ, Leipzig, Germany
„Modelling spatiotemporal dynamics of biodegradation under disturbances“
(Supervisors: Prof. Dr. Karin Frank, Dr. Martin Thullner)
- 03/2012 – 09/2012 **Master Student**, Laboratory for Environmental Analytics, Institute of Environmental Systems Research, Osnabrück University, Germany
„Exposure, effects and risks of benzophenone plastic additives in the aquatic environment“
(Supervisors: Dr. habil. Elke Fries, Prof. Dr. Henner Hollert (RWTH Aachen))
- 2010 – 2012 **Student Research Assistant**, Laboratory for Environmental Analytics, Institute of Environmental Systems Research, Osnabrück University, Germany
(Supervisor: Dr. Jörg Klasmeier)
- 04/2010 – 03/2011 **Bachelor Student**, Laboratory for Environmental Analytics, Institute of Environmental Systems Research, Osnabrück University, Germany
„Do additives in LDPE pellets influence the sorption of PAHs?“
(Supervisors: Dr. habil. Elke Fries, Prof. Dr. Michael Matthies)

Publications

- 2020 **König S.**, Vogel, H.-J., Harms, H. & Worrich, A. Physical, Chemical and Biological Effects on Soil Bacterial Dynamics in Microscale Models *Front. Ecol. Evol.* **8**, art. 53
- 2019 **König S.**, Köhnke, M.C., Firle, A.-L., Banitz, T., Centler F., Frank K. & Thullner, M. Disturbance size can be compensated for by spatial fragmentation in soil microbial ecosystems. *Front. Ecol. Evol.* **7**, art. 290
- 2018 **König S.**, Worrich A., Banitz T., Centler F., Harms H., Kästner M., Miltner A., Wick L.Y., Thullner M. & Frank K. Spatiotemporal disturbance characteristics determine functional stability and collapse risk of simulated microbial ecosystems. *Sci. Rep.* **8**, art. 9488
- König S.**, Worrich A., Banitz T., Harms H., Kästner M., Miltner A., Wick L.Y., Frank K., Thullner M. & Centler F. Functional resistance to recurrent spatially heterogeneous disturbances is facilitated by increased activity of surviving bacteria in a virtual ecosystem. *Front. Microbiol.* **9**, art. 734
- 2017 **König S.**, Worrich A., Centler F., Wick L.Y., Miltner A., Kästner M., Thullner M., Frank K. & Banitz T. Modelling functional resilience of microbial ecosystems: Analysis of governing processes. *Environ. Modell. Softw.* **89**, 31 - 39
- Worrich A., Stryhanyuk H., Musat N., **König S.**, Banitz T., Centler F., Frank K., Thullner M., Harms H., Richnow H., Miltner A., Kästner M. & Wick L.Y. Mycelium-mediated transfer of water and nutrients stimulates bacterial activity in dry and oligotrophic environments. *Nat. Commun.* **8**, 15472
- 2016 **König S.**, Modelling spatiotemporal dynamics of biodegradation under disturbances: insights into functional stability of microbial ecosystems, Dissertation, Universität Osnabrück
- Worrich A., **König S.**, Banitz T., Centler F., Frank K., Thullner M., Harms H., Miltner A., Wick L.Y. & Kästner, M. Bacterial dispersal promotes biodegradation in heterogeneous systems exposed to osmotic stress. *Front. Microb.* **7**, art. 1214
- Worrich A., **König S.**, Miltner A., Banitz T., Centler F., Frank K., Thullner M., Harms H., Kästner M. & Wick L.Y. Mycelium-like networks increase bacterial dispersal, growth, and biodegradation in a model ecosystem at various water potentials. *Appl. Environ. Microb.* **82** (10), 2902 - 2908

Conference contributions

- 2020 Virtual workshop: LTE research - methods, standardisation and modelling (oral)
European Geosciences Union (**EGU**), online (display)
- 2019 DOK conference on LTFEs, Monte Verità, Ascona, Switzerland (oral)
Ecological Society of Germany (**GfÖ**), Münster (oral)
German Soil Science Society (**DBG**), Bern, Switzerland (oral)
European Geosciences Union (**EGU**), Vienna, Austria (oral)
LTFE-Meeting IOSDV/BonaRes, Gießen (oral)
- 2018 Ecology of soil microorganisms (**ESM**), Helsinki, Finland (oral)
International Symposium on Microbial Ecology (**ISME17**), Leipzig (poster)
- 2017 Ecology Across Borders (**EAB/BES**), Ghent, Belgium (oral)
Functional Ecology and Environment (**FEE**), Toulouse, France (oral)
European Geosciences Union (**EGU**), Vienna, Austria (oral)
- 2016 British Ecological Society (**BES**), Liverpool, UK (oral)
European Geosciences Union (**EGU**), Vienna, Austria (oral)
- 2015 Ecology of soil microorganisms (**ESM**), Prague, Czech Republic (poster)
International Conference on Chemistry & the Environment (**ICCE**), Leipzig (oral)
Congress of European Microbiologists (**FEMS**), Maastricht, Netherlands (oral poster presentation)
European Geosciences Union (**EGU**), Vienna, Austria (oral)

Teaching experience

- 2014 – 2019 Institute of Environmental Systems Research, Osnabrück University, Germany
 - Introduction to **statistical analysis with R** (2 days each)
 - **Modelling exercise** for compact course
 - „Introduction to Ecological risk management“ (5 days each)
 - **Lecture** „Spatiality and functional resilience“
- 2018 – 2020 Institute of Environmental Systems Research, Osnabrück University, Germany
 - Introduction to **statistical analysis with R** (2 days)
 - **Modelling exercise** for compact course
 - „Modelling in Ecological risk management II“ (5 days)
 - **Lecture** „Modelling of soil functions and the impact of land use“
- 2013 – 2017 Department Ecological Modelling, UFZ, Leipzig & Kohren-Sahlis, Germany
 - **Modelling exercise** of annual winter school „Ecological Modelling“ (8 days each)
- 2012 Institute of Environmental Systems Research, Osnabrück University, Germany
 - **Supervisions** of bachelor students
 - Exercise for „Data and Models“ (2 SWS)

Organisational experience

- 2020 **Session** „Sustaining soil functions in organic and inorganic farming“, EGU General Assembly 2020, Online
Workshop „From process to prediction“, BonaRes status seminar, Leipzig
- 2019 **Workshop & Symposium** „Bridging scales in microbial ecology“, UFZ Leipzig
Session „Modelling of soil functions in agricultural systems“, EGU General Assembly 2019, Vienna
Workshop for BonaRes-Early Career Scientists, BonaRes status seminar, Leipzig
- 2018 Public event „**Night of the microbes**“, Werk 2, Leipzig
- 2017 – 2018 **Sponsorship** Coordinator and Member of **local organizing committee (LOC)** of ISME17 (International Symposium on Microbial Ecology), chaired by Prof. Dr. Hauke Harms, August 2018, Leipzig, Germany
- 2017 **Session** „Integrating Soil Systems Ecology into biogeochemical models“, EGU General Assembly 2017, Vienna
- 2016 **Workshop & Symposium** „Microbial dispersal in soil“, UFZ Leipzig
- 2013 – 2017 **Winter school** „Ecological Modelling“, Kohren-Sahlis
- 2011 **Excursion & Workshop** „Environmental Modelling at Research Institutes“, UFZ Leipzig

Additional activities & Awards

- since 2020 Committee member of the division „Soil System Science: Metric, Informatics, Statistics and Models in Soils“ of **European Geosciences Union (EGU)**
- 2019 **CSF Award** for best talk at the DOK conference in Monte Verità, Switzerland
- since 2019 Mentee in the **Helmholtz-Advance Mentoring** program
- since 2018 Coordination of BonaRes **Early Career Scientists**
Member of the **UFZ - PostDoc AG**
Coordination of PostDoc network at UFZ Halle
- since 2016 **Journal peer review** für
Scientific Reports, Environmental Science & Technology, MDPI, JIMB
- 2015 **Award** for second best poster at the HIGRADE conference
- since 2015 **Member** of scientific societies:
- Deutsche Bodenkundliche Gesellschaft (DBG)
- Vereinigung für allgemeine und angewandte Mikrobiologie (VAAM)
- European Geosciences Union (EGU)
- British Ecological Society (BES)