

# Curriculum Vitae

## Dr. Hannes Schmidt

### Personal Information

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Place and date of birth 16th November 1982, Bad Reichenhall, Germany  
Nationality German  
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Current Institution University of Vienna, Department of Microbiology and Ecosystem Science,  
Division of Microbial Ecology, Althanstr. 14, 1090 Vienna, Austria

### Main areas of research

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My main research interest lies in globally important cropping systems with focus on the cultivation of wetland rice (*Oryza sativa* L.) on paddy soils. I am particularly interested in the formation of microenvironments in the root-soil interface where microbial diversity and activity are largely affected by spatio-temporal variations of biogeochemical conditions. My research has always been focused on the *in situ* identification, quantification, and visualization of key microbial groups in soil microenvironments via application of techniques of molecular biology. My long-term goal is to increase the understanding of microbial populations contributing to the N- and C-cycle in terrestrial ecosystems. I have contributed to nine peer-reviewed articles in major scientific journals (6 × first author, 4 × corresponding author, 3 × senior author) and to two book chapters. I have been working as a Marie-Curie Fellow (IEF, FP7) at the Division of Microbial Ecology at the University of Vienna where I am still investigating active nitrogen fixers associated with terrestrial ecosystems.

### Education

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Ph.D. Dr. rer. nat., April 2013  
Department of Soil Science/Soil Microbial Ecology  
University of Bremen, Bremen, Germany  
Thesis: *Spatio-temporal dynamics of microbial populations and biogeochemical conditions in the rooted layer of paddy soils*

Diploma Dipl.-Geogr., November 2008  
Department of Soil Science  
University of Bremen, Bremen, Germany  
Thesis: *Application of rhizoboxes for the monitoring of the root-zone of wetland rice (Oryza sativa L.) during an entire growing season*

2006-2008 Study of Physical Geography, University of Bremen, Bremen, Germany

2003-2006 Study of Physical Geography, University of Erlangen-Nuremberg, Bavaria, Germany

2002-2003 Alternative civilian service, Pidinger Werkstätten GmbH, Bavaria, Germany

2002 University-entrance diploma, Karls gymnasium Bad Reichenhall, Bavaria, Germany

## **Research/Work Experience**

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- 2016-current Postdoctoral researcher at University of Vienna, Austria
- 2014-2016 Marie-Curie-Fellow at University of Vienna, Vienna, Austria
- 2009-2014 Researcher/Ph.D. student at University of Bremen, Bremen, Germany
- 2007-2009 Student assistant at University of Bremen, Bremen, Germany
- 2005-2007 Student assistant at University Erlangen-Nuremberg, Bavaria, Germany

## **Teaching Experience**

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- 2013-current Supervision of bachelor (2) and master students (1)
- 2010-current Training of student assistants in Soil Science/Soil Microbiology
- 2011-current Training of guest scientists in FISH-techniques (e.g. Sarah Lebeis, University of Tennessee; International FISH course 2015 & 2016)
- 2009-current Supervision of students in laboratory courses

## **Scientific service**

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- 2013-current Ad-hoc Reviewer for Environmental Microbiology, *Soil Biology & Biochemistry*; *Frontiers in Plant Science*, *FEMS Microbiology Ecology*, *Plant and Soil*, *Soil and Tillage Research*; *Agriculture, Ecosystems and Environment*; *Plos ONE*; *Science of the total Environment*, *Soils*.

## **Scientific and public outreach**

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- 2016-current Committee member of *Subdivision 4: Soil Biology, Microbiology and Biodiversity* in the *Division of Soil System Sciences* of the *European Geosciences Union*.
- 2017 Convener and chair of the session *Unravelling soil-biota interactions using micro-scale analyses* at the General Assembly of the European Geosciences Union (EGU), 23.-28.04.2017, Vienna, Austria.
- 2016 Co-Convener and chair of the session *Current methods in soil microbial ecology* at the General Assembly of the European Geosciences Union (EGU), 17.-22.04.2016, Vienna, Austria.
- 2015 Co-Convener and chair of the session *Imaging, visualization and quantitative analysis of heterogeneity, water flow, and life in soil and the rhizosphere* at the General Assembly of the European Geosciences Union (EGU), 12.-17.04.2015, Vienna, Austria.
- 2015-current Organization of a microbiological workshop for children in the age of 7-12 within the framework of *KinderuniWien*, Vienna, Austria.

## **Grants and awards**

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- 2015 Scientific & Technological Cooperation with France (OeAD, No. FR11/2016).
- 2014 Marie Curie Intra-European Fellowship (FP7, People, IEF, No. 628361) at University of Vienna, Division of Microbial Ecology (DOME), Vienna, Austria.
- 2013 Impulse Grant at University of Bremen, Soil Microbial Ecology, Bremen, Germany.
- 2011 Travel Grant (DAAD) for Rhizosphere3 conference in Perth, Australia.

## **List of scientific publications (\* indicates corresponding author)**

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- Schmidt H.**, Eickhorst T. 2017. Gold-FISH: in situ hybridization of microbial cells for combined fluorescence and scanning electron microscopy. In: Thomas Liehr (Eds.), *Fluorescence In Situ Hybridization (FISH)*, Springer Protocols Handbooks.
- Richter-Heitmann T, Eickhorst T, Knauth S, Friedrich M, **Schmidt H\***. 2016. A crucial choice: Implications of separation strategy on root-associated microbial communities. *Front. Microbiol.* 24 May 2016, <http://dx.doi.org/10.3389/fmicb.2016.00773>frontiers.
- Oburger E\*, **Schmidt H\***. 2016. New methods to unravel rhizosphere processes. *Trends Plant Sci.* 21:243-255.
- Eickhorst T, **Schmidt H.** 2015. Gold-based *in situ* hybridization for whole-cell detection of prokaryotes in environmental samples. In: Hurst CJ, Crawford RL, Garland JL, Lipson DA, Mills AL, Stetzenbach LD (Eds.), *Manual of Environmental Microbiology 4*, ASM Press.
- Schmidt H\***, Vetterlein D, Köhne JM, Eickhorst T. 2015. Negligible effect of X-ray  $\mu$ -CT on archaea and bacteria in an agricultural soil. *Soil Biol. Biochem.* 84:21-27.
- Schmidt H\***, Eickhorst T. 2014. Detection and quantification of native microbial populations on soil-grown rice roots by catalyzed reporter deposition-fluorescence *in situ* hybridization. *FEMS Microbiol. Ecol.* 87:390-402.
- Schmidt H**, Eickhorst T. 2013. Spatio-temporal variability of microbial abundance and community structure in the puddled layer of a paddy soil cultivated with wetland rice (*Oryza sativa* L.). *Appl. Soil Ecol.* 72:93-102.
- Knauth S, **Schmidt H**, Tippkötter R. 2013. Comparison of commercial kits for the extraction of DNA from paddy soils. *Lett. Appl. Microbiol.* 56:222-228.
- Schmidt H**, Eickhorst T, Mußmann M. 2012. Gold-FISH: A new approach for the *in situ* detection of single microbial cells combining fluorescence and scanning electron microscopy. *Syst. Appl. Microbiol.* 38:518-525.
- Schmidt H**, Eickhorst T, Tippkötter R. 2012. Evaluation of tyramide solutions for an improved detection and enumeration of single microbial cells in soil by CARD-FISH. *J. Microbiol. Methods* 91:399-405.
- Schmidt H**, Eickhorst T, Tippkötter R. 2011. Monitoring of root growth and redox conditions in paddy soil rhizotrons by redox electrodes and image analysis. *Plant Soil* 341:221-232.

#### **List of 5 selected scientific Presentations (\* indicates presenting author)**

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- Schmidt H\***, Woebken D. 2017. Diversity and activity of nitrogen fixing archaea and bacteria associated with micro-environments of wetland rice, EGU 2017, 23.-28.04.2017, Vienna, Austria. Oral presentation.
- Schmidt H\***, Woebken D. 2016. Diversity and activity of diazotrophs associated with micro-environments of wetland rice, 12<sup>th</sup> European Nitrogen Fixation Conference, 23.-28.08.2016, Budapest, Hungary. Poster pitch presentation.
- Schmidt H\***, Eickhorst T. 2015. Microbes in root-soil interfaces: colonization patterns in oxic/anoxic micro-environments of wetland rice, Rhizosphere4, 21.-25.06.2015, Maastricht, Netherlands. Poster pitch presentation.
- Schmidt H\***, Eickhorst T. 2013. Microbes and root-soil interfaces: *in situ* analysis of single cells in rhizosphere research. Annual Meeting of the Association for General and Applied Microbiology (VAAM) 2013, 10.-13.03.2013, Bremen, Germany. Oral presentation.
- Schmidt H\***, Eickhorst T. 2011. Application of the molecular *in situ* technique FISH in the rhizosphere of paddy soils. Rhizosphere3, 25.-30.09.2011, Perth, Australia. Oral presentation.