Stephan Christel, PhD | Resumé

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Personal data

Date and place of birth: December 25, 1988; Balingen (Germany)
Nationality: German

Education and research

Oak Ridge National Laboratory, Tennessee, USA *2019-pres*
Postdoctoral Researcher
- Horizontal Gene Transfer in Plant/Microbe Interfaces
- CRISPR/Cas mediated control of microbial communities

Linnéuniversitetet, Kalmar, Sweden *2015–2018*
PhD program, graduated Oct. 2018
- Thesis: ➡ Function and Adaptation of Acidophiles in Natural and Applied Communities

Georg August Universität, Göttingen, Germany *2013–2014*
Master of Science program, *not concluded*
- Microbiology, Genetics, Biochemistry, Methods of Biosciences

Linnéuniversitetet, Kalmar, Sweden *2012–2013*
Research assistant
- Application of Acidophiles in Biomining
- Acidophilic Microbial Fuel Cells
  - Thesis: ➡ Microbial Fuel Cells - Phylogeny and Resistance to Toxic Substances

Universität Duisburg-Essen, Essen, Germany *2009–2012*
Bachelor of Science program, graduated May 2012
- Molecular Biology, Organic and Inorganic Chemistry, Analytics
  - Thesis: ➡ Bioleaching of Chalcopyrite - Metal Release and Molecular Phylogeny

Philipp-Matthäus-Hahn Gymnasium, Balingen, Germany *2005–2008*
Abitur (university entrance diploma)

Publications

- Buetti-Dinh A, Herold M, **Christel S**, El Hajjami M, Ilie O, Bellenberg S, Wilmes P, Poetsch A, Sand W, Vera M, Pivkin IV, Friedman R, Dopson M. **In preparation**. *Reverse Engineering Gene Regulatory Networks from Transcriptomics and Proteomics Data of Bioleaching Bacterial Biofilms with Approximate Bayesian Computation and Steady-State Signalling Simulations*. Elsevier. doi:-.

- **Christel S**, Yu C, Wu X, Josefsson S, Sohlenius G, Åström ME, Dopson M. **2019**. *Comparison of boreal acid sulfate soil microbial communities in oxidative and reductive environments*. Research in Microbiology. doi:10.1016/j.resmic.2019.06.002.
- Buetti-Dinh A, Galli V, Bellenberg S, Ilie O, Herold M, **Christel S**, Boretska M, Pivkin IV, Wilmes P, Sand W, Vera M, Dopson M. **2019**. *Deep Neural Networks Outperform Human Experts Capacity in Characterizing Bioleaching Bacterial Biofilm Composition*. Biotechnology Reports. doi:10.1016/j.btre.2019.e00321.
- **Christel S**, Herold M, Bellenberg S, Buetti-Dinh A, El Hajjami M, Pivkin IV, Sand W, Wilmes P, Poetsch A, Vera M, Dopson M. **2018**. *Weak iron oxidation by Sulfobacillus thermosulfidooxidans maintains a favorable redox potential for chalcopyrite bioleaching*. Frontiers in Microbiology. doi:10.3389/fmicb.2018.03059.
- Berkelmann D, Schneider D, Engelhaupt M, Heinemann M, **Christel S**, Wijayanti M, Meryandini A, Daniel R. **2018**. *How rainforest conversion to agricultural systems in Sumatra (Indonesia) affects active soil bacterial communities*. Frontiers in Microbiology. doi:10.3389/fmicb.2018.02381.
- Bellenberg S, Buetti-Dinh A, Galli V, Ilie O, Herold M, **Christel S**, Boretska M, Pivkin IV, Wilmes P, Sand W, Vera M, Dopson M. **2018**. *Automated microscopical analysis of metal sulfide colonization by acidophilic microorganisms*. Applied and Environmental Microbiology. doi:10.1128/aem.01835-18.
- Högfors-Rönnholm E, **Christel S**, Engblom S, Dopson M. **2018**. *Indirect DNA extraction method suitable for acidic soil with high clay content.* MethodsX. doi:10.1016/j.mex.2018.02.005.
- Högfors-Rönnholm E, **Christel S**, Dalhem K, Lillhonga T, Engblom S, Osterholm P, Dopson M. **2017**. *Chemical and microbiological evaluation of novel chemical treatment methods for acid sulfate soils.* Science of the Total Environment. doi:10.1016/j.scitotenv.2017.12.287.
- **Christel S**, Herold M, Bellenberg S, El Hajjami M, Buetti-Dinh A, Pivkin IV, Sand W, Wilmes P, Poetsch A, Dopson M. **2017**. *Multi-omics reveal the lifestyle of the acidophilic, mineral-oxidizing model species Leptospirillum ferriphilum^T*. Applied and Environmental Microbiology. doi:10.1128/aem.02091-17.
- Broman E, Jawad A, Wu X, **Christel S**, Ni G, Lopez-Fernandez M, Sundkvist JE, Dopson M. **2017**. *Low temperature, autotrophic microbial denitrification using thiosulfate or thiocyanate as electron donor.* Biodegradation. doi:10.1007/s10532-017-9796-7.
- Ni G, **Christel S**, Roman P, Wong ZL, Bijmans MF, Dopson M. **2016**. *Electricity generation from an inorganic sulfur compound containing mining wastewater by acidophilic microorganisms.* Research in Microbiology. doi:10.1016/j.resmic.2016.04.010.
- **Christel S**, Fridlund J, Watkin EL, Dopson M. **2016**. *Acidithiobacillus ferrivorans SS3 presents little RNA transcript response related to cold stress during growth at 8 degrees C suggesting it is a eurypsychrophile*. Extremophiles. doi:10.1007/s00792-016-0882-2.
- **Christel S**, Fridlund J, Buetti-Dinh A, Buck M, Watkin EL, Dopson M. **2016**. *RNA transcript sequencing reveals inorganic sulfur compound oxidation pathways in the acidophile Acidithiobacillus ferrivorans.* FEMS Microbiology Letters. doi:10.1093/femsle/fnw057.
- **Christel S**, Dopson M, Vera M, Sand W, Herold M, Wilmes P, Buetti-Dinh A, Pivkin I, Trötschel C, Poetsch A, Nygren J, Kubista M. **2015**. *Systems Biology of Acidophile Biofilms for Efficient*

Metal Extraction. Advanced Materials Research. doi:10.4028/www.scientific.net/amr.1130.312.

International congress attendance

- Extremophiles 2018, Ischia, Italy. Oral presentation: *Low-rate iron oxidation by Sulfobacillus thermosulfidooxidans increases efficiency of microbially catalyzed copper extraction*
- International Biohydrometallurgy Symposium 2017, Freiberg, Germany. Abstract: *Leptospirillum ferriphilum - Genome, Transcriptome, and Proteome of a Biomining Model Species*
- FEMS Congress of European Microbiologists 2017. Poster: *Leptospirillum ferriphilum; genomic, transcriptomic, and proteomic characterization of an acidophile model species.*
- Ecotech 2016, Kalmar, Sweden. Oral presentation: *Less may be more: improving chalcopyrite bioleaching kinetics via sequential inoculation of acidophilic model species.*
- International Biohydrometallurgy Symposium 2015, Bali, Indonesia. Poster: *Systems biology of acidophile microorganisms for efficient metal extraction.*

Additional research activities

- Peer review activity for Frontiers in Microbiology, MDPI Minerals
- Supervision of B.Sc. and M.Sc. project students

Awards

- Linnéakademien Forskningsstiftelsen Stipendium forskarnivå 2015 - Research stipend for PhD students

Professional skills

standard wet-lab techniques: various cultivation techniques including substrate limited continuous cultivation. Experienced in nucleic acid (DNA, RNA) and protein isolation by kit and non-kit protocols, targeted PCR amplification, gel electrophoresis, cloning, *etc*

organisms: experienced with both environmental and model organisms. anaerobes, acidophiles, psychrophiles, soil microbes

dry-lab techniques: bioinformatic analysis of of sequencing data obtained by Sanger, Illumina, and PacBio sequencing via established pipelines and self-written scripts on super-computational infrastructure

informatic tool-set: R, Python, Bash, Git, Markdown, LaTeX

others: multi-metal analysis by atomic absorption spectroscopy, laboratory safety and inventory management, operation of liquid handeling robots, particle analysis by flow cytometry, interpersonal communication in diverse and international teams

Languages

german: mother tongue

english: fluent

french, swedish: basic

Public contributions

Child care worker *2008–2009*
Körperbehindertenförderung Necker-Alb, Hechingen
Community service in a nursery school for mentally impaired children

Reference contacts

Prof. Mark Dopson, PhD Supervisor *mark.dopson@lnu.se*
Linnéuniversitetet, Sweden

Dr. Eva Högfors-Rönnholm, collaborator *eva.hogfors-ronnholm@novia.fi*
Novia Yrkeshögskolan, Finland

Dr. Antoine Buetti-Dinh, collaborator *antoine.buetti.dinh@usi.ch*
Università della Svizzera Italiana, Switzerland

Dr. Margarita Lopez-Fernandez, collaborator *m.lopez-fernandez@hzdr.de*
Helmholtz-Zentrum Dresden-Rossendorf, Germany