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Swiss citizen  
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## CURRICULUM VITAE

### Short Profile

- Specialized in chemical and physical processes of the environment
- Performed research in bioremediation and biogeochemistry
- Experienced with the chemistry of mining-influenced waters

### Academic Education

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2012-2015	<b>PhD in Civil and Natural Resources Engineering</b>	University of Canterbury
2007-2009	<b>MSc in Environmental Sciences</b>	University of Lausanne
2004-2007	<b>BSc in Geosciences</b>	University of Lausanne

### Languages

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English: Full professional proficiency  
German: Basic written and oral skills  
French: Native language

### Technical & Personal Skills

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- Advanced water chemistry analyses (ICP-MS, IC, TOC)
- Advanced mineralogical analyses (XRD, XRF, basics of XAS)
- Basic microbiology techniques (including anaerobic cultivation)
- Organized: able to plan, prioritize and coordinate
- Good interpersonal and public communication skills

### IT-Skills

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- MS Office, OpenOffice, Photoshop (basics)
- PhreeqC (geochemical modeling)
- SigmaPlot, Grapher (scientific graphing)
- ArcGIS (basics)

## Professional Activities and Training

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- 02/2012-09/2015    **Civil and Natural Resources Engineering,  
University of Canterbury (UC), New Zealand.**  
Ph.D. thesis: *The use of waste mussel shells in sulfate-reducing bioreactors treating mine-influenced waters*
- Collaboration with the environmental consulting company CRL Energy.
  - Part-time lecturer for 3<sup>rd</sup> year course on *Environmental Engineering and Constructed Wetland Ecosystems* (incl. preparation of teaching material, homework, and exam questions).
  - Co-supervision of two final year student projects.
  - Teaching assistant for several undergraduate courses.
- 01/2011-10/2011    **Frontiers Media S.A.,  
Science Park, Ecole Polytechnique Fédérale de Lausanne (EPFL),  
Switzerland.**  
*Editorial assistant and IT helpdesk collaborator*
- Worked in the Head Office for an open-access scientific publisher.
  - Development of new journals (establishment of editorial board and public marketing, including coordination two teams of three persons, assigning and checking tasks on a daily basis).
  - Worked on customer queries and problem reports, coordinating with the application support team in India.
- 11/2009-08/2010    **Environmental Microbiology Laboratory (EML),  
EPFL, Switzerland.**  
*Scientific collaborator*
- Designed a method for the estimation of the labile and highly reactive fraction of uranium(IV) in environmental samples.
  - Worked in a team with researchers from Stanford University and Washington University in St-Louis.
- 09/2008-07/2009    **Center for Mineral Analysis (CAM),  
University of Lausanne (UNIL), Switzerland.**  
Master thesis: *Characterization of surface water and riverbed sediments of a mountain river impacted by acid mine drainage in Rosia Montana, Romania.*
- Collaboration with the University of Babes-Bolyai (Romania) and the mining company Gabriel Resources Ltd.
  - Participation to the Central & Eastern European Conference on Health & Environment (CEECH, Oct. 2008, Cluj-Napocca, Romania).

### *Peer-reviewed journal publications and conference proceedings:*

- Uster, B.**, O'Sullivan, A.D., Ko, S.Y., Evans, A., Pope, J., Trumm D., and Caruso B. (2015) *The use of mussel shells in upward-flow sulfate-reducing bioreactors treating acid mine drainage*. *Mine Water and the Environment*, 34 (4): 442-454 (first online December 2014).
- Uster, B.**, O'Sullivan, A.D., Pope, J., and Trumm D. (2013) *Treating acid mine drainage using waste mussel shells in sulfate-reducing bioreactors operating at different hydraulic retention times*. *Proceedings of 2013 AusIMM Annual Conference*, Nelson, New Zealand: pp. 515-523.
- Alessi, D. S., **Uster, B.**, Borca, C., Grolimund, D., and Bernier-Latmani, R. (2013) *Beam-induced oxidation of monomeric U(IV) species*. *Journal of Synchrotron Radiation*, 20 (1): 197-199.
- Alessi, D. S., **Uster, B.**, Veeramani, H., Stubbs, J. E., Lezama-Pacheco, J. S., Bargar, J. R. and Bernier-Latmani, R. (2012) *Quantitative separation of monomeric U(IV) from UO<sub>2</sub> in products of U(VI) reduction*. *Environmental Science & Technology*, 46(11): 6150-6157.

### *Conference abstracts and posters:*

- Uster, B.**, Milke, M., O'Sullivan, A.D., Pope, J., Trumm, D., Webster-Brown, J. (2015) *Heavy metal removal and partitioning in sulfate-reducing bioreactors treating mine influenced water*. 10<sup>th</sup> International Conference on Acid Rock Drainage, Santiago, Chile (poster).
- Uster, B.**, Milke, M., O'Sullivan, A.D., Pope, J., Trumm, D., Caruso B. (2014) *The use of mussel shells in upward-flow sulfate-reducing bioreactors treating acid mine drainage*. 31<sup>st</sup> National Meeting of the American Society of Mining and Reclamation, Oklahoma City, USA.
- Uster, B.**, O'Sullivan, A.D., Pope, J., and Trumm, D. (2013) *Performance of sulfate-reducing bioreactors treating mine influenced water using waste mussel shells*. 26<sup>th</sup> International Applied Geochemistry Symposium, Rotorua, New Zealand.
- Bernier-Latmani, R., Veeramani, H., Schofield, E., Sharp, J.O., Alessi, D. S., **Uster, B.**, Suvorova, E. I., Bargar, J. (2010) *Reduction of U(VI) by microorganisms: Formation of nanoparticulate uraninite and other products*. GSA Annual Meeting, Denver, USA.
- Alessi, D. S., **Uster, B.**, Veeramani, H., Stubbs, J. E., Lezama-Pacheco, J. S., Bargar, J. R. and Bernier-Latmani, R. (2010) *Method to estimate the contribution of molecular U(IV) to the product of U(VI) reduction*. 20th Annual V. M. Goldschmidt Conference, Knoxville, TN, USA.
- Bernier-Latmani, R., Veeramani, H., Alessi, D. S., **Uster, B.**, Suvorova, E., Sharp, J. O., Bargar, J. R., Lezama, J. S., Stubbs, J. and Giammar, D. E. (2010)

*Biogeochemical Factors Governing the Formation and Subsurface Stability of Reduced Molecular Uranium Species*, 5th Annual Department of Energy – Environmental Remediation Sciences Program PI Meeting, Washington, D.C., USA.

**Uster, B.**, Pfeifer, H-R., Baci, C. (2008) *Characterization of surface water and riverbed sediments of a mountain river impacted by acid mine drainage in Rosia Montana, Romania*. 3rd Central and Eastern Conference on Health and the Environment, Cluj-Napoca, Romania (poster).

*Others:*

**Uster, B.**, Trumm, D., Pope, J., Weber P., O’Sullivan, A.D., Weisener, C., Diloreto, Z.A. (2014) *Waste Mussel Shells to Treat Acid Mine Drainage: A New Zealand Initiative*. Reclamation Matters (ASMR), Fall 2014. pp. 23-27.

An amended version of this article was republished in the Canadian Land Reclamation Association Journal (Fall/Winter 2015, Vol. 15, Issue 2).

*In preparation:*

**Uster, B.**, Milke, M., Webster-Brown, J.G., O’Sullivan, A.D., Pope, J., and Trumm, D. (2016) *Metal-removal mechanisms in a sulfate-reducing bioreactor treating acid mine drainage: a sequential extraction study* (to be submitted to Earth Science Journal).

#### Awards & Grants

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- Ph.D. Memorial Scholarship (2014); American Society of Mining and Reclamation (ASMR)
- Honorable Mention for oral presentation; 31<sup>st</sup> ASMR National Meeting (Oklahoma City, USA, June 2014)
- Student Travel Grant; 31<sup>st</sup> ASMR National Meeting (Oklahoma City, USA, June 2014)
- Post-graduate Studies Scholarship (2012-2015); CRL Energy Ltd.
- Best Student Paper Award; Australasian Institute of Mining and Metallurgy Conference (Nelson, New Zealand, August 2013)
- Young Researcher Grant (2012); University of Lausanne, Switzerland
- Field Work Grant (2008, Master Thesis); Engineers Without Borders, EPFL Section, Lausanne, Switzerland

#### Extracurricular Activities & Hobbies

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- Former member of the association *Unipoly* for the promotion of sustainable development EPFL-UNIL (2007-2010)
- Various voluntary works: *Swiss Cetacean Society*, *Zoo La Garenne*
- Reading, hiking, nature and science in general

- Associate Prof. Dr. Mark Milke  
Dept. of Civil and Natural Resources Engineering  
University of Canterbury (UC)  
8041 Christchurch, New Zealand  
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- Dr. Aisling O’Sullivan  
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- Prof. Dr. Hans-Rudolf Pfeifer  
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- Associate Prof. Dr. Rizlan Bernier-Latmani  
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