

Dr. Markus Lenz
Senior Researcher

University of Applied Sciences and Arts Northwestern Switzerland (FHNW)
Institute for Ecopreneurship
Gründenstrasse 40
CH-4132 Muttenz
T +41 614 674 791
Email: Markus.Lenz@fhnw.ch
<http://www.fhnw.ch/lifesciences/iec/>



Expertise

Markus Lenz is senior researcher at FHNW (University of Applied Sciences and Arts Northwestern Switzerland) and studies biotransformations for remediation and resource recovery of redox sensitive elements. He received his PhD degree from Wageningen University within the Marie Curie Excellence TEAM Grant “Novel biogeological engineering processes for heavy metal removal and recovery” of Prof. Piet Lens. During the thesis he used anaerobic granular sludges for biological selenium removal from (waste)waters. After a PostDoc period, he became Senior Researcher at FHNW, where he focusses on recovery and reuse of heavy metals and metalloids, speciation of redox sensitive trace elements and environmental fate of biogenic and engineered nanomaterials.

Key papers related to the COST action

- **Lenz, M.**, Van Hullebusch, E., Hommes, G., Corvini, P. F. X., Lens, P. N. L. (2008). Selenate removal in methanogenic and sulfate reducing upflow anaerobic sludge bed reactors. *Water Research*, 42 (8-9), 2184-2194.
- **Lenz, M.**, Smit, M., Binder, P., van Aelst, A.C., Lens, P. N. L. (2008). Biological alkylation and colloid formation of selenium in methanogenic UASB reactors. *Journal of Environmental Quality* 37, 1691-1700.
- **Lenz, M.**, Janzen, N., Lens, P. N. L. (2008). Selenium oxyanion inhibition of hydrogenotrophic and acetoclastic methanogenesis. *Chemosphere*, 73 (3), 383-388.
- **Lenz, M.**, van Hullebusch, E.D., Farges, F., Nikitenko, S., Borca, C.N., Grolimund, D., Lens, Piet N. L. (2008). Selenium speciation assessed by X-ray absorption spectroscopy of sequentially extracted anaerobic biofilms. *Environmental Science and Technology*, 42 (20), 7587–7593
- **Lenz, M.**, van Hullebusch, E.D., Farges, F., Nikitenko, S., Corvini, P.F.X., Lens, P.N.L. (2011). Combined speciation analysis by XANES, IC and SPME-GC-MS to evaluate biotreatment of concentrated selenium wastewaters. *Environmental Science and Technology*, 45 (3), 1067–1073.
- **Lenz, M.**, Kolvenbach, B., Gygax, B., Moes, S., Corvini, P.F.X. (2011). Shedding light on selenium biomineralization: proteins associated to bionanominerals. *Applied and Environmental Microbiology*, 77 (13), 4676–4680.
- **Lenz, M.**, Floor, G. H., Winkel, L., Roman-Ross, G., Corvini, P.F.X. (2012). Online Pre-concentration-IC-ICP-MS for Selenium Quantification and Speciation at Ultratracess. *Environmental Science and Technology*, 46 (21), 11988–11994.
- Buchs, B., Evangelou, M.H.W., Winkel, L., **Lenz, M.** (2013). Colloidal properties of nanoparticulate biogenic selenium govern environmental fate and bioremediation effectiveness. *Environmental Science and Technology*, 47 (5), 2401–2407.
- Hennebel, T, Boon, N, Maes, S., **Lenz, M.** (2013). Biotechnologies for Critical Raw Material Recovery from Primary and Secondary Sources: R&D Priorities and Future Perspectives. *New Biotechnology* (in press). Doi 10.1016/j.nbt.2013.08.004
- Vriens, B. , **Lenz, M.** , Charlet, L. , Berg, M. , Winkel, L.H.E. (2013). Natural wetland emissions of methylated trace elements. *Nature communications* 5, Article 3035, doi:10.1038/ncomms4035