

SS-3. Biomineralization and biomining of inorganics - unifying remediation with resource recovery

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Bioremediation efforts aiming at reducing dissolved element content in wastewaters or long-term immobilization of elements in soils and sediments are often effective means to tackle inorganic contamination. However, in conventional approaches the elements of concern are lost from the cycle in the form of disposed metal sludges or in the soil / sediment matrix. This is unfavorable from the point of view that a number of contaminants are in fact critical raw materials, being of above average economic importance and facing high supply risk. We aim at initiating a discussion on the next generation of inorganic bioremediation that needs to unite remediation goals with resource recovery and reuse. Topics to be covered may include biologically induced or controlled precipitation of metals and metalloids in general, and critical raw materials (REE or PG metal) in particular, that allow for a later recovery and reuse. Further, we would like to explore possibilities for biomining of critical raw materials of novel secondary sources, such as incineration ashes or e-waste, as a mean of preventive environmental protection.

Keynote Speaker: Tom Hennebel, University of California, Berkeley