

CO₂ Mineralization for *in situ* Storage and *ex situ* Enhanced Metals Recovery



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Prof. Lammers is an environmental geochemist specializing in carbonate mineralization and selective element extraction. Her work combines molecular isotopic tracers and advanced imaging to develop mechanistic models of mineral growth and ion exchange reactions in complex aqueous solutions.

Technology or focus area

- Accelerated weathering with evaporite carbonation
- Electrochemistry

Ideas, Interests, Concepts to be Explored

Gypsum replacement reactions generate massive limestone deposits in the rock record.

I propose a process for *in situ* mineral carbonation that separates the source of alkalinity (lithium claystone weathering) from the calcium source (evaporite gypsum) using direct air capture of CO₂.

Adding lithium recovery improves economics with an industry-tested process.

Leverages co-localized mineral resources in CA and NV. Other application targets include Gt-scale phosphogypsum deposits in the US and globally.