

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



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Dr. Gadikota directs the Sustainable Energy and Resource Recovery Group. Prior to Cornell, she served on the faculty at the Univ. of Wisconsin – Madison, held postdoctoral research associate appointments at Princeton and Columbia, and a research associate appointment at NIST. Her PhD in Chemical Engineering and MS degrees in Chemical Engineering and Operations Research are from Columbia University. Her BS in Chemical Engineering is from Michigan State University.

She is a recipient of the DOE CAREER Award, AICHE Sabic Award for Young Professionals from the Particle Technology Forum, Minerals Young Investigator Award, an invited participant in the NAE Frontiers of Engineering, invited speaker at the NAE German-American Frontiers of Engineering Symposium, and was recognized as a Scialog Fellow in Negative Emissions Science.

Technology or focus area

- Sustainable energy and resource recovery
- Negative emissions technologies
- Carbon capture, utilization, storage and removal

Ideas, Interests, Concepts to be Explored

Exploring regenerable ligand and solvent-based separation of critical materials and lithium with inherent carbonate conversion, accelerating the cementation of fractures using carbonate and silica chemistries

H₂ recovery from regenerable energy recovery with inherent carbon mineralization

Integrated CO₂ capture (or DAC) and carbon mineralization with inherent solvent regeneration

Novel materials for REE, critical and heavy metals separation

Upcycling low value residues to higher value products with inherent carbon mineralization via integrated chemical-electrochemical pathways

Tuning fracture morphologies via carbon mineralization