

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

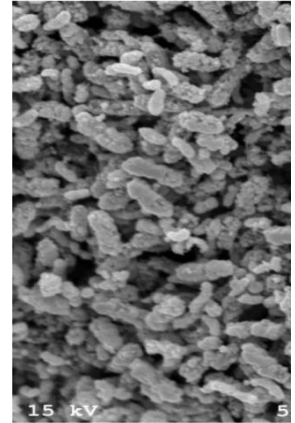


Dr. Bruce E. Rittmann
Chairman/Chief Science Officer
Precient Technologies LLC.
bruce@precienttechnologies.com

Dr. Bruce E. Rittmann is the director of the Biodesign Swette Center for Environmental Biotechnology and Regents' Professor of Environmental Engineering at Arizona State University. He is an international leader in research and development on technologies that utilize microorganisms to provide sustainability services, such as cleaning up pollution and generating renewable resources. Dr. Rittmann is the inventor of the MBfR (Membrane Biofilm Reactor), a member of the National Academy of Engineering, a Fellow of the International Water Association and the National Academy of Inventors, and winner of the 2018 Stockholm Water Prize.

Technology or focus area

Precious Metals and Rare Earth Elements (REE) recovery through bioremediation using the H₂-based MBfR (Membrane Biofilm Reactor)



Pd⁰ NPs in the biofilm

Ideas, Interests, Concepts to be Explored

- Precient can remove REEs and precious metals from wastewaters in the mining, ore-processing, and recycling industries.
- Precient can generate and recover valuable nanoparticles of REEs and precious metals
- The concepts have been proven at the bench-scale (e.g., see photo of Pd⁰ NPs).
- Precient is looking for pilot testing and partnering opportunities.