

how does nature do it?

CBBG

Center for Bio-mediated & Bio-inspired Geotechnics



Nasser Hamdan

Industry Collaboration & Innovation Director



Intro/Background

- **Education:** Zoology, biochemistry, geotechnical engineering
- **Experience:** Engineer; retail & self-service business; electrical & plumbing industry/construction
- **Research:** biogeochemical processes for ground improvement & remediation
 - Induced carbonate precipitation using biological processes
 - Macromolecules such as enzymes and biopolymers
- **ILO & Research:** involved in various projects related to ground improvement, surficial soil stabilization, sustainable building materials and soil remediation.

CBBG:

- Gen-3 ERC
- Four academic institutions
 - ASU, Georgia Tech, New Mexico State, UC Davis
- Industrial Partners program
 - Consultants, Contractors, Owners, Agencies

Mission:

- **Develop** innovative technology to serve civil engineering industry
- **Educate & train** future engineers in the field of Biogeotechnics

Biogeotechnics (Biogeotechnical Engineering)

An emerging sub-discipline in **geotechnical engineering** that includes:

- **Bio-mediated processes:** Managed & controlled via biological activity (living organisms)
 - **Bio-inspired processes:** Biological principles employed to develop new, abiotic solutions (no living organisms)
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Nature has developed many elegant biogeotechnical processes through billions of years of trial and error . . .

How can these processes be used to address geotechnical problems?