



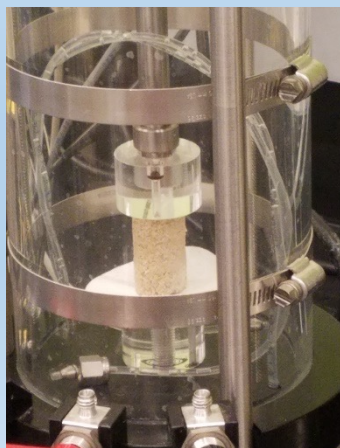
Sand and Clay Stabilization through the Bio-cementation Method

Physical Presence Required: Students need to run experiments in the field/lab.

Bio-cemented sand

- Create sand cylinders using microbially induced carbonate precipitation
- Design and 3D print soil mold
- Test different methods and sands to optimize specimen creation
- Run uniaxial compression tests
- Run 3D laser scan, X-Ray CT scan, SEM

Goal: to investigate the influence of environmental factors on bio-cemented sand strength.



Bio-remediation of desiccation cracking in clay

- Study desiccation cracking over time
- Compare clay mixtures of water to different percentages of bacteria and calcium chloride solutions
- Study the rebonding of desiccation cracks using microbially induced carbonate precipitation.
- Perform image analysis of desiccation cracking pattern.

Goal: to investigate the influence of bio-cementation on desiccation cracking processes.

Advisor: Dr. Cheng Zhu and Dr. Melissa Lomboy

Hands on clinic

Potential internship/publication opportunity

3 CEE Students needed

More information available in:

<https://chengzhu.wixsite.com/geomechanics-lab/courses>

Project funded by Camden Health Research Initiative

