

SEPT. 21-27, 2023  
CHENGDU, CHINA

# The XIV Congress of the International Association for Engineering Geology and the Environment



Session 4-8

## Recent Developments in Bio-mediated Geotechnics

### Conveners

### Brief Introduction of the Session:



#### Chaosheng Tang

Nanjing University,  
Nanjing, Jiangsu, China  
tangchaosheng@nju.edu.cn



For a long time in the practice of engineering geology and geotechnical engineering, soil has been viewed as an inert material for construction, comprising of only three phases – mineral solids, pore water and trapped air. The understanding of the fundamentals of soil behavior is primarily based on these three inorganic phases. However, one fact that has been ignored for a long by engineering geologists and geotechnical engineers is that microorganisms including bacteria, archaea and eukaryote are ubiquitous in soil. Microbes have the capacity and capability to alter biogeochemical processes in local soil environment and the accumulative changes could consequently modify the physical, mechanical, conductive, and chemical properties of the bulk soil matrix. In recent years, the concept of bio-mediated geotechnics has been proposed, which involves the usage of exogenous or indigenous microbes to improve mechanical and hydraulic properties of soil through a series of bio-geochemical processes. In particular, microbially induced calcite precipitation (MICP), a ubiquitous bio-geochemical process that occurs in soil and produces permanent inorganic precipitate serving as a binding between soil grains, has received the greatest research focus. As a multidisciplinary field of research, MICP has received extensive multifaceted investigations since it was introduced as a potential technique for soil improvement. To promote the sharing and communication of latest research development in the field of bio-mediated geotechnics, we propose to organize a special session during the XIV IAEG CONGRESS 2022. This session will cover, but not limited to, the following topics:

- The fundamentals of bio-mediated geotechnics
- Developments in materials and characterization methods for bio-mediated geotechnics
- The applications of bio-mediated geotechnics in hazard mitigation
- The applications of bio-mediated geotechnics in environmental protection
- Sustainability issues related to bio-mediated geotechnics



#### Ningjun Jiang

Southeast University,  
Nanjing, Jiangsu, China  
jiangn@seu.edu.cn



#### Toshiro Hata

Hiroshima University  
Hiroshima Prefecture, Japan  
thata@hiroshima-u.ac.jp



## IMPORTANT DATES



Abstract for Oral Presentation and  
Poster Submission Deadline

Jun. 30, 2023



Early Bird Registration Deadline

Aug. 10, 2023



Online Registration Deadline

Sept. 21, 2023

## SUBMISSION

### For the full-length submission

The submission system is now open for full-length papers. The deadline for submission of full-length paper has been extended to May 31, 2023. Please read the guidelines for paper submittal prior to submitting your full-length paper.

Please read the guidelines prior to submitting your full-length paper or long abstract at <https://www.iaeg2023.org/cfp.html>

### For the abstract submission

The abstract submission system for oral presentations and posters is open! If you would rather prepare an abstract for an oral or poster presentation, rather than submitting a full paper, please submit your abstract for consideration by June 30, 2023.

Please read the guidelines prior to submitting your abstract at <https://www.iaeg2023.org/cfa.html>



www.iaeg2023.org

Tel: +86-28-84073193 / +86-135 4003 2551

E-mail: [info@iaeg2023.org](mailto:info@iaeg2023.org); [IAEG2022@cdut.edu.cn](mailto:IAEG2022@cdut.edu.cn)