

# MICROBIAL INDUCED CALCITE PRECIPITATION IN FINE SOILS: SOME RECENT OBSERVATIONS AND APPLICATIONS

## Speaker

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## Abstract

Soft clay layers commonly found in urban areas pose significant challenges for construction due to their low shear strength and high compressibility. While Microbially Induced Carbonate Precipitation (MICP) has been extensively studied for sand improvement, its application to clay remains relatively limited. This presentation discusses recent advances in the application of MICP for clay improvement, covering three main aspects. First, the improvement mechanisms of MICP in clay are examined, focusing on validating bacterial mobility within fine pores to confirm the feasibility of MICP in clay. Second, the study explores different MICP solution delivery strategies under consolidation stress. In addition to pressure injection, electrokinetic treatment is introduced and compared regarding improvement effectiveness and distribution. Third, a full-scale slope model test simulates intense rainfall on an artificial clay slope to evaluate the potential of MICP in mitigating rainfall-induced shallow landslides. These findings contribute to a better understanding of MICP implementation in clay soils and demonstrate its potential for practical applications in geotechnical engineering.

## Biography

Dr. Fuchen Teng is an associate professor and the deputy chair of the Department of Civil and Construction Engineering at National Taiwan University of Science and Technology (NTUST), Taipei, Taiwan. His areas of interest are innovative ground improvement, soil stress-strain-strength behaviors, soil-structure interaction problems, and geological disposal of rad-wastes.

Dr. Teng was the Secretary of General of Chinese Taipei Geotechnical Society (CTGS) between 2023-2025, and the Secretary of General of the AsRTC6 (Urban Geo-Engineering) of the International Society of Soil Mechanics and Geotechnical Engineering (ISSMGE). Currently, he serves as Managing Editor in Journal of GeoEngineering, an official publication of CTGS. Dr. Teng co-authors a textbook 'Fundamentals of Foundation Engineering' published by Taylor & Francis.

Dr. Teng received several paper awards, such as: 2024 Paper Award in Chinese Institute of Engineers (CIE), 2023 Best Paper Award and 2020 Excellent Paper Award in Journal of GeoEngineering.



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**Conference Room**  
**Room 3574 (Lift 27/28)**

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