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Department of Civil and Environmental Engineering

Preliminary investigation of geotechnical bionics: Innovative pile foundations and root-inspired drilling

by

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Host: A/Prof Goh Siang Huat

Department of Civil and Environmental Engineering

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Time: 11:15 am – 12:15 pm
Venue: EA-02-11
College of Design and Engineering
National University of Singapore
1 Engineering Drive 2
Singapore 117576

Abstract

Biomimicry is an important discipline that uses relevant biological knowledge systems to solve engineering problems, which can provide new ideas, principles and theories for geotechnical engineering technological innovation and sustainable development. Strengthening the research of geotechnical bionics is of great significance to accelerate the construction of an intensive, efficient, economical, intelligent, green, safe and reliable modern geotechnical infrastructure system. This report carries out the preliminary exploration of geotechnical biomimetic from the perspective of new pile foundation and root heuristic drilling such as new snakeskin bionic pile and tooth root pile, in order to provide relevant theoretical support and scientific basis for the high-quality development of pile foundation engineering and drilling engineering.

Speaker's Biography



Dr. Wengang ZHANG is currently full professor in School of Civil Engineering, Chongqing University, China. His research interests focus on Underground Engineering, Slope Engineering, Bio-inspired Geotechnics, as well as big data and machine learning in geotechnics and geoenvironmental engineering. He is now the members of the ISSMGE TC304 (Reliability), TC309 (Machine Learning), TC219 (System Performance of Geotechnical Structures) and TC222 (Digital Twin). He also serves Geoscience Frontiers as Associate Editor, Editorial member for Georisk, Journal of Rock Mechanics and Geotechnical Engineering as well as Underground Space. Dr Zhang has been selected as 2021 and 2022

Highly cited Chinese Scholars, as well as 2023 Clarivate Highly cited Researchers with h index of 44. He won the 2019 Computers and Geotechnics Sloan Outstanding Paper Award, 2021 Underground Space Outstanding Paper Award, Georisk Most Cited Paper Award 2021, Fok Ying Tung Education Foundation Award: Young Scientist Award for Colleges and Universities.

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