

# ON DESIGN OF NEW ENERGY GEOTECHNICAL STRUCTURES: HOW SAFE IS SAFE ENOUGH?

## Speaker

### Prof. Jie Zhang

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## Abstract

The development of new energy infrastructures is indispensable to the achievement of a carbon neutral society. However, how to design new energy geotechnical structures reliably and economically is challenging because of the lack of experiences. This presentation will first discuss the challenges involved in the design of new energy geotechnical structures. Then, the safety and reliability of different types of existing geotechnical structures will be compared, which will provide valuable reference for assessing the safety of new energy geotechnical structures. Thereafter, using the design of offshore wind turbine pile foundations as an example, how to quantify and evaluate the safety of a new energy geotechnical structure will be described, through rigorous characterization of the uncertainties and assessment of their effects on the performance of the geotechnical structure. The presentation will also briefly introduce the recent recruitment plan of the department of geotechnical engineering, Tongji University.

## Biography

Dr. Jie Zhang is a Professor from the Department of Geotechnical Engineering, Tongji University, Shanghai, China. He obtained his PhD from The Hong Kong University of Science & Technology in 2009. His expertise is on geotechnical reliability and risk assessment, and has published over 100 related peer-reviewed papers. He is the leading coauthor of the textbook *Geotechnical Reliability Analysis: Theories, Methods, and Algorithms*, and the instructor of the ISSMGE Virtual University online course *Probability Analysis in Civil Engineering*. He is the founding managing editor of the journal of *Underground Space* (JCR Q1, IF = 8.2), and the vice chair of TC304 on Engineering Practice of Risk Assessment & Management, ISSMGE. Currently, he is the director of the Ministry of Education Key Laboratory of Geotechnical and Underground Engineering, Tongji University, China.



**23 January 2025**  
**Thursday**



**4:00 – 5:30pm**



**Room 3584A (Lift 27/28)**  
**Academic Building**  
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