



中国科学院武汉岩土力学研究所

Institute of Rock and Soil Mechanics, Chinese Academy of Sciences

岩土力学与工程前沿讲坛

Forum on Geomechanics and Geo-engineering

No.SK2025-24

应岩土力学与工程安全全国重点实验室邀请，新加坡国立大学 Zhang Pin 博士来访交流并作学术报告，报告信息如下：

报告人
Lecturer

Zhang Pin 博士

报告题目
Theme

Physics-Informed Data-Driven Modelling and Computation in Geotechnics

报告时间
Time

2025 年 10 月 12 日（周日）下午 15:00

报告地点
Spot

武汉岩土所研发大楼 7 楼学术会议室

欢迎广大科研人员及研究生参加！



岩土力学与工程安全全国重点实验室

State Key Laboratory of Geomechanics and Geotechnical Engineering Safety



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报告简介

Physics-informed data-driven modelling has gained significant attention across various domains. Our current studies found that physics-informed data-driven modelling is a concise and elegant way of capturing soil behaviour directly from data, but its feasibility in representing more complex soil responses requires further validation. Physics-informed data-driven computation is a promising alternative to FEM, but its capability in addressing multi-phase coupling problems remains to be strengthened. Its potential for integration with field data, particularly for data assimilation and inverse analysis, is highly valuable. This talk will carefully discuss these two viewpoints. A novel thermodynamically consistent hierarchical learning framework for automatically identifying internal variables and predicting stress-strain responses of granular soils will be introduced, while also addressing common misconceptions in data-driven soil/solid mechanics. The discussion extends to the development of physics-informed learning-based data-driven methods for canonical geotechnical problems including consolidation and footing, etc.

报告人介绍



Zhang Pin, is now the Presidential Young Professor at the National University of Singapore. Dr ZHANG was the Royal Society Newton International Fellow at the University of Cambridge (2023-2024) and earned his PhD from the Hong Kong Polytechnic University (2020-2022), including one year at the University of Oxford as a visiting scholar. His research focuses on data-driven modelling methodology, intelligent computational mechanics, granular mechanics, and geohazards. His work has been published in top-tier journals in solid mechanics, computational mechanics and geotechnical engineering domains such as JMPS, CMAME and Géotechnique, etc. His research has received multiple awards such as the Bright Spark Lecture Award from ISSMGE, the Early Career Award from the ICE (UK), Editor's Choice from the ASCE, FSCE Best Paper from the CAE, Ringo Yu Prize from HKIE, etc.

