



DEPARTMENT OF CIVIL ENGINEERING

SEMINAR

Acoustic Emission in Geomaterials

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Date: January 17, 2024 (Wednesday)

Time: 11:00 a.m. – 12:00 n.n.

Venue: Room 612B, 6/F Haking Wong Building, The University of Hong Kong

ABSTRACT

This talk presents three comprehensive studies investigating the role of acoustic emission in geomaterials. The first study delves into how acoustic emission reveals the progressive failure process of intact rock, providing insights into the fracture development and failure mechanisms. The second study focuses on the acoustic emission on rock joint surfaces subject to shear deformation. It explores the correlation between acoustic emission events and the mechanical behaviour of rock joints, with a novel utilization of machine learning-aided relocation. The third study examines acoustic emission in granular materials, highlighting its potential to unveil the systematics of the shear behaviour of granular materials. Collectively, these studies contribute to a better understanding of the complex behaviour of geomaterials under stress, with potential applications in geotechnical engineering, mining, and natural hazard studies. The talk aims to stimulate further research and discussion in the field of acoustic emission and its applications in the study of geomaterials.

ABOUT THE SPEAKER

Dr Qi Zhao is an Assistant Professor at the Civil and Environmental Engineering Department at the Hong Kong Polytechnic University (PolyU). He obtained his PhD degree at the University of Toronto and then worked as a postdoc at the University of Toronto and UC Berkeley before joining PolyU. He is a recipient of the Leopold Müller Award by the Austrian Society for Geomechanics and the Dr N.G.W. Cook PhD Dissertation Award by the American Rock Mechanics Association (ARMA). He was selected to be a Future Leader of ARMA in 2021. He chaired and hosted the 2023 ARMA East Asia Geomechanics Workshop. His research interests cover several aspects of geomechanics and geophysics including in situ 4D rock physics experiments under X-ray micro-CT, laboratory earthquakes (acoustic emissions), and shear behaviour of rock discontinuities.

- ALL ARE WELCOME -