



## Granular Flows: Mesoscale Structures, Thermodynamics and Simulations

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### ABSTRACT

Granular materials are important constituents in many industrial processes and geophysical phenomena. Understanding the evolution of internal structures of granular flows would be crucial when describing and predicting natural geophysical hazards, particularly the frequent granular-type debris flows that occur in the mountainous areas. Although extensive studies have been carried out worldwide to investigate the different aspects of granular flows, the fundamental initiation and propagation mechanisms of granular flows are not yet fully understood.

In this talk, Dr Sun will focus on four aspects:

- (1) Granular materials;
- (2) Mesoscale measurements;
- (3) Thermodynamics; and
- (4) Material Point Method simulations to explain and transfer the message from the fundamental issues of granular flows.

**Date:** 22 October 2018 (Monday)

**Time:** 17:30 – 18:30

**Venue:** Room Z504, 5/F, Block Z,  
The Hong Kong Polytechnic University,  
181 Chatham Road South,  
Hungghom, Kowloon, Hong Kong

### SPEAKER'S BIOGRAPHY

Dr Qicheng Sun obtained his PhD in computational fluid dynamics of particulate systems in 2000 from Chinese Academy of Sciences. His research interests are: Granular materials; mixing and segregation; thermodynamics; constitutive modeling. Since 2010, he has published three monographs, two book chapters and fifty-four scientific articles in the field of granular flows (including thirty-five articles collected in the ISI Web of Science). He edited (as Guest Editor) three special issues in journals of Chinese Science Bulletin (both in Chinese and English versions) in 2009, and Rock and Soil Mechanics in 2010. He delivered many keynote presentations at national and international conferences. Dr Sun has been leading a national multidisciplinary research group, with members from fields of physics, applied mathematics, fluid dynamics and mountain Hazards and Environment. He has also been very active in promoting research on granular materials in China, and has organized three national conferences and two international mini symposia. Dr Sun has been awarded, as principle investigator, NSFC Key Project grants of around RMB3.5 Million.

\*\*\* All Interested Are Welcome \*\*\*

For further information, please contact Dr Andy Leung at Tel. 2766-6064 or [yfleung@polyu.edu.hk](mailto:yfleung@polyu.edu.hk). Free Admission. Certificates of attendance will be provided to participants if they attend the whole lecture.