

# 第8回 レジリエンス工学国際セミナー

## 8th International Seminar on Resilience Engineering

主催：レジリエンス工学研究センター Hosted by : Resilience Engineering Research Center

### トピックス : Topics

マルチスケール・マルチフィジックスシミュレーション  
Multiscale and Multiphysics Simulation

### 日時 : Date

2019/12/11 13:00 ~ 14:45

### 場所 : Venue

工学部 8 号館 502 室  
Room-502, Faculty of Engineering Building 8

### プログラム : Program

Immersed Boundary Method for Multiphase Transport

Prof. Kun Luo ( Zhejiang University, China )

#### Abstract:

Multiphase flows with heat and mass transfer exist widely in a variety of industrial applications. The complex mass, momentum and energy coupling poses extra difficulties in understanding the fundamental physics of multiphase transport. With the fast development of numerical algorithms and computer performance, numerical simulation has become a promising tool in investigating heat and mass transfer problems. Immersed boundary method is an interface capturing method which gains much popularity in simulations of multiphase transport. In this talk, I will first attempt to give an overview of immersed boundary methods, followed by boundary conditions for multiphase flows with heat and mass transfer and implementations of immersed boundary method. Then, some recent progresses will be presented and highlighted. Finally, the future challenges will be discussed.

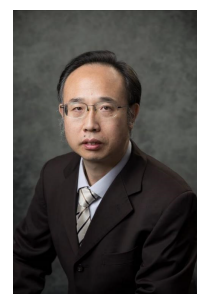


Multiscale discrete simulation of multiphase systems

Prof. Wei Ge (Chinese Academy of Sciences (CAS), China)

#### Abstract:

Discrete element method (DEM) is now widely used for the simulation of granular and particle-fluid flows. However, to meet the requirements of industrial and engineering applications, three aspects of the method are improved and extended, namely, the coarse-graining for the discrete particle simulation of gas-solid flow, consideration of geometrical irregularity for realistic particles, and the parallel implementation of discrete methods on heterogeneous supercomputing systems. With these efforts, industrial scale systems, such as the circulating fluidized beds for petrochemical processes, can be simulated in discrete methods within a reasonable time, and for lab scale systems, even interactive virtual operation will be possible.



### 連絡先 : Contact

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参加希望者は 12/4 までにご連絡ください。

Please register by December 4th via e-mail.