Multi-Scale Structures

Understanding and quantifying spatio-temporal multi-scale structures present a challenge to chemical engineering science not only for scaling-up different processes but also for manipulating material structures and properties. With the development of complexity science, multi-scale structures received more and more attention in chemical engineering, focusing on the bridge between micro-mechanism and macro-behavior. It was proposed that a progress in understanding multi-scale behavior will lead to a breakthrough in the whole chemical engineering. This topic aims at the complexity of multi-scale phenomena, methodologies in simulation, measurement and possible application of multi-scale methods in industries.

Scope

This topical conference is dedicated to Understanding and quantifying spatio-temporal multi-scale structures.

The proposed topics are:

- **Complexity of spatio-temporal multi-scale structures**
  - Correlation and/or dependence between different scales
  - Stability conditions in complex systems
  - Coupling between spatial and temporal heterogeneity
  - Non-linear and no-equilibrium features

- **Simulation and modeling of multi-scale structures**
  - Quantum and molecular dynamics simulation
  - Direct numerical simulation
  - Multi-scale methodology

- **Measurement techniques for multi-scale structures**
  - Non-intrinsic measurement of dynamic processes
  - Electrical/magnetic methods
  - Novel optical methods

- **Application of multi-scale methods**
  This symposium will be included in the WCCE8 proceedings. However, we encourage the submission of the full articles to Journals.

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