Special Issue

Phase Change, Interphase Coupling, and Multiphase Transport in Porous Structures

Message from the Guest Editors

Multiphase flows and phase-change phenomena are often encountered in many engineering systems, such as CCUS (carbon capture, utilization and storage); the exploitation of oil, natural gas and other underground resources; the utilization of geothermal energy and hydrogen energy, etc. Multiphase flows refer to the interactive flow of distinct phases, and each phase discriminated by common interfaces in a channel represents a mass or volume of matter. Multiphase flows can occur in a single-component or multi-component systems. Possible phase combinations include:

- Solid–liquid–gas, where solid particles and gas bubbles are mostly dispersed in the liquid;
- Solid–gas, solid–liquid, and liquid–gas, where the volume fraction of one phase is relative to other results for different flow regimes;
- Phase change and miscibility phenomena involved in a combination of the above.

Understanding the fundamentals and mechanisms of multiphase transport and phase-change phenomena is continuously needed to develop the relevant technology of engineering applications.

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Materials (ISSN 1996-1944) was launched in 2008. The journal covers twenty-five comprehensive topics: biomaterials, energy materials, advanced composites, advanced materials characterization, porous materials, manufacturing processes and systems, advanced nanomaterials and nanotechnology, smart materials, thin films and interfaces, catalytic materials, carbon materials, materials chemistry, materials physics, optics and photonics, corrosion, construction and building materials, materials simulation and design, electronic materials, advanced and functional ceramics and glasses, metals and alloys, soft matter, polymeric materials, quantum materials, mechanics of materials, green materials, general. *Materials* provides a unique opportunity to contribute high quality articles and to take advantage of its large readership.

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