Special Issue

Advances in Coupled Numerical Simulation of Gas Hydrate Behaviour in Porous Media

Message from the Guest Editors

In this Special Issue, we are inviting the contribution of innovative studies (including both review and research papers) that numerically describe gas hydrate dynamic behaviour in porous media at various temporal and spatial scales (i.e., core scale, laboratory reactor scale, reservoir field scale, etc.). Prospective topics include but are not limited to (a) the fluid production and energy recovery process of natural gas hydrates (i.e., depressurization, thermal stimulation, inhibitor injection and other novel methods including wellbore design, etc.); (b) hydrate-based CO2 storage in geological settings (e.g. deep marine locations, CO2–CH4 exchange method, etc.); (c) the short-term and long-term transport of CH4 in geological environments and the associated formation of the NGH reservoir; (d) pore-scale simulation (Lattice Boltzmann method, pore network model, CFD simulations, etc.) that elucidates the fundamental heat and mass transfer behaviour and thermophysical properties of hydrate-bearing sediments with phase change; (e) reservoir-scale simulation that aims to optimize the production strategies of different types of NGH reservoirs.

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Energies is an international, open access journal in energy engineering and research. The journal publishes original papers, review articles, technical notes, and letters. Authors are encouraged to submit manuscripts which bridge the gaps between research, development and implementation. The journal provides a forum for information on research, innovation, and demonstration in the areas of energy conversion and conservation, the optimal use of energy resources, optimization of energy processes, mitigation of environmental pollutants, and sustainable energy systems.

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