Special Issue

Natural Gas Hydrate: Recovery and Applications

Message from the Guest Editor

Gas hydrate is composed of gas molecules (main component of natural gas: methane, propane, CO2, etc.) confined in a dense lattice of water molecules. In general, these lattices can hold more than one hundred times the number of gas molecules. In thermodynamics, gas hydrate can be stable under high pressure and low temperature conditions, and therefore natural gas hydrate sediments are under permanent frosts and shallow sediments of deep-sea continent, where are adequate sources of natural gas that are both biogenic by bioactivity in sediments and generated by deeper geological processes within the Earth. Once thought to be rare, gas hydrates are now abundant, and the recoverable sediments are estimated thousand trillions of cubic meters all over the world. The production from hydrate-containing sediments by thermal stimulation, depressurization, chemical injection or a combination of them will be an important way for energy supply worldwide. In addition, CO2 hydrate is one kind of gas hydrates and has a good application prospect on carbon capture and storage.

Guest Editor

Dr. Lanlan Jiang

School of Energy and Power Engineering, Dalian University of Technology, Dalian, China

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Applied Sciences
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
applsci@mdpi.com

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Editor-in-Chief

Prof. Dr. Giulio Nicola Cerullo
Dipartimento di Fisica, Politecnico di Milano, Piazza L. da Vinci 32, 20133 Milano, Italy

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