

## Special Issue

# Frontier Research of Energy Engineering: Geothermal Energy Utilization and Groundwater Heat Pump Systems

### Message from the Guest Editors

Shallow geothermal energy (SGE) has been proved as one of the most economical, environment-friendly and renewable energy sources for heating and cooling buildings in the world. A geothermal heat pump device is commonly used to transfer heat with the shallow geothermal reservoir for heating buildings in winter and cooling in summer. These systems can be classified into two main groups depending on the geothermal heat exchangers used to exploit the reservoir: closed-loop systems (ground-coupled heat pumps, GCHPs) and open-loop systems (ground water heat pumps, GWHPs). This Special Issue will focus on GWHP systems and the groundwater impacts of GCHP systems. The scope focuses on research dealing with (but not exclusively): • analytical studies addressing technological challenges in the development, performance and efficiency of SGE systems;

- plume interactions between SGE systems;
- any thermo-hydro-mechanical-chemical impacts of SGE systems on aquifers;
- the use of innovative techniques that enhance data acquisition and parameter estimation in aquifers;
- any other issue related to geothermal energy;

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### Guest Editors

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### Deadline for manuscript submissions

closed (31 January 2023)



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