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Coupled Multi-Physics Mechanics of Geomaterials for Energy and Environmental Applications

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ABSTRACT

Current challenges in the energy transition and environmental management demand a deeper understanding of geomaterials under complex coupled conditions. This minisymposium will highlight recent advances in coupled multi-physics mechanics of geomaterials, bridging fundamental processes with practical applications in energy and environmental geotechnics. Topics include, but are not limited to, thermo-hydro-mechanical-chemical (THMC) interactions in subsurface systems such as CO₂ storage, hydrogen storage, geothermal applications, and nuclear waste repositories.

Contributions addressing experimental investigations at multiple scales, from laboratory to in situ, as well as advanced constitutive modeling and computational frameworks, are particularly welcome. Special emphasis will be given to experiments that reveal and quantify relevant coupled processes, and to theoretical or numerical frameworks grounded in a physical understanding of these interactions. The minisymposium will provide a platform for cross-disciplinary exchange and showcase recent strategies to better characterize and design geomaterials for energy and environmental applications.

Keywords: Geomaterials, THMC interactions, Multi-physics, Experimental investigations, Theoretical and computational frameworks.



MINI-SYMPOSIUM ORGANIZERS



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KEY DATES

- Start abstract submission: *November 1, 2025*
- Abstract deadline: *January 15, 2026*
- Abstract acceptance notification: *February 15, 2026*
- Conference begins: *June 2, 2026*

For details and submission, visit emi-conference.org.