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Modeling Multiphase Flow and Reactive Transport in Porous Media

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submissions:
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Message from the Guest Editors

Many fundamental and practical aspects of multiphase flow processes, which are crucial in various energy and environmental applications, are not well understood. For instance, how are the processes controlled by interplay between large-scale flow patterns, such as fingering and local-scale Fickian diffusion, mechanical dispersion, and chemical reaction? How can we incorporate small-scale physical and chemical processes in the pore and core-scale into large-scale multiphase flow and transport models? How does the heterogeneous nature of rock–fluid properties and its uncertainty impact multiphase flow dynamics? What are the implications of thermodynamic changes in fluid properties?

Topics of interest include but are not limited to:

- Multiphase flow in porous and fractured reservoirs;
- Geochemistry and reactive transport;
- Pore-scale processes;
- Constitutive relations;
- Enhanced oil/gas recovery;
- Upscaling flow and transport parameters;
- Coupled hydraulic, thermal, mechanical, chemical, and biological processes;
- Advanced modeling framework and methods.



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Message from the Editor-in-Chief

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