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Editorial

HIGHLIGHTS FROM THE NEW ISSUE OF INTERPORE JOURNAL

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This issue brings together a set of contributions that highlight both the diversity and the momentum of research in porous media. What stands out is not only the technical depth of the work, but also the variety of questions being explored—from fundamental processes to applications. It is a pleasure to introduce this collection and to share the insights it offers with our readers.

In this new issue, Zamani et al. (6) examine how salt precipitation during geological CO_2 storage can affect injection performance. Using advanced 3D simulations, the authors identify key flow regimes controlled by capillary, viscous, and gravity forces, and show where and how salt accumulates. The results provide a clearer understanding of salt formation in both homogeneous and heterogeneous reservoirs, offering useful guidance for managing injectivity in large-scale storage projects.

Haese and Jyoti (3) explore the processes controlling copper recovery during heap leaching of low-grade ores, with a focus on chalcopyrite dissolution. By developing a detailed multicomponent reactive-transport model, the authors show how surface reactions and the formation of secondary minerals can limit metal extraction over time. The study highlights the importance of fluid chemistry and transport processes in optimizing recovery and preventing surface passivation.

Cepeda-Salgado et al. (2) evaluate a novel approach for in-situ remediation of dense non-aqueous phase liquids using surfactant imbibition combined with active formation fluid extraction. Through simulation, the authors demonstrate that the method significantly improves contaminant recovery compared to conventional water imbibition approaches. The results highlight how system design and flow conditions can enhance mobilization and removal of trapped pollutants, offering a promising direction for more effective site remediation.

Singh et al. (5) use laboratory experiments with analogue fluids to investigate dispersive mixing during gravity-driven flow in porous media, motivated by applications such as hydrogen storage. The authors examine how mixing interacts with leakage through fractures and introduce a new metric to quantify dispersion. Their results highlight how flow conditions and geometry influence mixing, providing insights relevant for subsurface storage processes.

Antelo et al. (1) explore the use of medical CT imaging as a practical alternative to high-resolution techniques for characterizing rock properties. By applying dual- and single-energy CT methods, the authors demonstrate that key properties such as porosity and density can be estimated with reasonable accuracy on larger samples. The work highlights a faster and more cost-effective approach for petrophysical analysis, while also discussing current limitations and opportunities for improvement.

Or et al. (4) present a novel method to control fluid flow in geothermal reservoirs by blocking large fractures using heat-activated epoxy resin foam. Laboratory experiments and modeling show how injected resin droplets can travel through the system and then expand and solidify at high temperatures, reducing permeability. The approach offers a potential new way to enhance water-rock heat exchange, while also highlighting challenges for scaling up to field applications.

In bringing this issue to a close, it is clear that the strength of our field lies in its ability to connect ideas across scales, methods, and applications. The contributions collected here not only deepen our understanding but also raise new questions and opportunities for exploration. I hope this issue inspires continued innovation within the porous media community.

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Publisher's Note (30 October 2026): The reference list has been reordered alphabetically, and the corresponding in-text citation numbers have been updated. Minor grammatical corrections have also been made. These changes do not affect the scientific content of the Editorial.