

## Special Issue

# Fractal (Self-Similar) Porous Media: Modeling and Applications

### Message from the Guest Editors

Porous materials used for transport, insulation, and energy applications often have complex geometries that classical Euclidean-based models cannot accurately represent. Recent progress in fractal methods offers new ways to describe how waves, fluids, and energy propagate, how materials resist flow, and how dissipation and diffusion occur in self-similar porous structures.

Topics include wave and flow propagation in non-integer-dimensional spaces, fractal continua, fractional transport equations, dynamic models of permeability and tortuosity, fractal-based homogenization, and experiments on self-similar porous materials. Applications cover acoustic and thermal insulation, filtration, energy storage, and porous systems in geophysics and biomedicine. This Special Issue seeks to develop a unified framework that connects microstructural complexity to quantifiable transport properties by combining concepts from fractal geometry, fractal continuum mechanics, and transport modeling. This work should help develop better predictive models and engineered materials designed for specific acoustic performances.

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### Guest Editors

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Dr. Kouqi Liu

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### Deadline for manuscript submissions

30 October 2026



## Fractal and Fractional

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## About the Journal

### Message from the Editor-in-Chief

*Fractal and Fractional* (*Fractal Fract.*) is a scholarly online journal which provides a forum for discussion on new original models and methods in fractals and fractional calculus both from theory and applications. It is a peer-reviewed, open access journal that publishes high quality original research articles, review papers and short communications.

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### Editor-in-Chief

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