

Special Issue

Recent Advances in Fractal Analysis for Hydrocarbon Dynamics and Flow Modeling

Message from the Guest Editors

The field of Fractal Analysis for Gas Dynamics and Flow Modeling refers to the interdisciplinary of mathematical modeling and oil and gas reservoir geology, which serves the quantitative characterization and mathematical description of unconventional reservoir structures. These concepts focused on mathematical operations and precise evaluations of microscopic accumulation capacity, hydrocarbon-bearing ability, and mobility of coal, shale, and tight sandstone reservoirs.

The focus of this Special Issue is to continue to advance research on topics relating to the theory, design, implementation, and application of fractal analysis and modeling in gas dynamics and flow modeling. Topics that are invited for submission include (but are not limited to):

- Fractal and fractional theory;
- Mathematical description of reservoir physical property;
- Application of fractal theory in of pore structure characterization;
- Design of multivariate quantitative evaluation scheme for reservoir quality;
- Mathematical modeling of hydrocarbon content and mobility evolution;
- Fine characterization of oil and gas migration and accumulation process.

Guest Editors

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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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manuscripts are peer-reviewed and a first decision is provided to authors approximately 19.3 days after submission; acceptance to publication is undertaken in 2.8 days (median values for papers published in this journal in the second half of 2025).