

Special Issue

New Horizons in Fractional and Fractal Dynamics: Unraveling Complexity in Chaotic Systems

Message from the Guest Editors

This special issue aims to highlight pioneering research and cutting-edge developments at the dynamic intersection of fractional dynamics, fractal analysis, and chaotic systems. We seek high-quality contributions that advance theoretical understanding, introduce novel computational and analytical methodologies, and demonstrate impactful applications across a wide range of scientific and engineering disciplines. Submissions may address, but are not limited to, the following areas:

- New fractional-order chaotic system models.
- Stability analysis and bifurcation in fractional-fractal systems.
- Complexity measures integrating fractional dynamics.
- Numerical techniques for high-dimensional fractional chaotic systems.
- Algorithms for estimating fractal dimensions and multifractal parameters.
- Machine learning/AI approaches for analyzing fractional-fractal chaos.
- Relationships between fractional operators and emergent fractal properties.
- Dynamics and control of networks with fractional node dynamics.
- Modeling neural dynamics and fractal scaling.
- Fractional-fractal models for market volatility..
- Fault diagnosis with fractional elements.
- High complexity of fractional-fractal chaos for robust security.

Guest Editors

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Deadline for manuscript submissions

30 June 2026



Fractal and Fractional

an Open Access Journal
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Impact Factor 3.3
CiteScore 6.0



mdpi.com/si/248911

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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.

Editor-in-Chief

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manuscripts are peer-reviewed and a first decision is provided to authors approximately 19.9 days after submission; acceptance to publication is undertaken in 2.7 days (median values for papers published in this journal in the first half of 2025).