

## Special Issue

# Fractional Derivatives and Their Applications to Fractional Diffusion Problems

### Message from the Guest Editors

Fractional calculus is an incredible tool for understanding the complex world. The significance of fractional calculus has been shown to be exceptionally compelling in various phenomena, such as diffusion processes, viscoelasticity, long-range interactions, materials, and so on. It turns out that fractional calculus provides numerous advantageous features that offer interesting solutions to system modeling and control, optimization algorithm design, and machine learning. Fractional diffusion systems are fundamental mathematical systems for the evolution of probability densities. The motivation behind this Special Issue is to introduce an assortment of articles showing recent developments and results that rely on the frame of fractional derivatives and their applications to fractional diffusion equations and other fractional differential equations. Topics that are invited for submission include (but are not limited to):

- Fractional order systems;
- Existence and Stability analysis of fractional order systems;
- Numerical methods for fractional diffusion equations;
- Analytical solutions of fractional diffusion equations;
- Modeling in the frame of fractional derivatives.

### Guest Editors

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### Deadline for manuscript submissions

closed (1 June 2023)



## 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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### Author Benefits

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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).