

## Special Issue

# Stochastic Dynamical Systems with Fractional Derivative: Theoretical Analysis and Numerical Simulation

### Message from the Guest Editors

This Special Issue will focus on advanced research on theoretical analysis on topics related to the theoretical development of fractional calculus, fractional-order operator design, and dynamical properties analysis including the stabilization, response, reliability and control of stochastic structural systems in engineering under random excitation with fractional derivative damping. Papers on newly established techniques related to the numerical simulation of fractional dynamics are also welcome. Topics of interest include the following:

- Response of stochastic dynamical system with fractional derivative damping;
- Reliability of stochastic dynamical system with fractional derivative damping;
- Fractional-order controller designs and realizations;
- Optimization of fractional-order controlled systems;
- Intelligent algorithm for solutions of stochastic dynamical system with fractional derivative;
- Digital and numerical approximations for solutions of fractional-order systems;
- Stabilization of the fractional dynamical system;
- Applications of fractional-order dynamical systems.

---

### Guest Editors

Prof. Dr. Wei Li

School of Mathematics and Statistics, Xidian University, Xi'an 710071, China

Prof. Dr. Nataša Trišović

Faculty of Mechanical Engineering, Department of Mechanics, University of Belgrade, 11000 Belgrade, Serbia

---

### Deadline for manuscript submissions

15 August 2026



## Fractal and Fractional

---

an Open Access Journal  
by MDPI

---

Impact Factor 3.3  
CiteScore 6.0



[mdpi.com/si/242630](https://mdpi.com/si/242630)

*Fractal and Fractional*  
Editorial Office  
MDPI, Grosspeteranlage 5  
4052 Basel, Switzerland  
Tel: +41 61 683 77 34  
[fractalfract@mdpi.com](mailto:fractalfract@mdpi.com)

[mdpi.com/journal/  
fractalfract](https://mdpi.com/journal/fractalfract)





# Fractal and Fractional

---

an Open Access Journal  
by MDPI

---

Impact Factor 3.3  
CiteScore 6.0



[mdpi.com/journal/  
fractalfract](https://mdpi.com/journal/fractalfract)



## 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

Prof. Dr. Carlo Cattani

Engineering School (DEIM), University of Tuscia, Largo dell'Università,  
01100 Viterbo, Italy

---

### Author Benefits

#### High Visibility:

indexed within Scopus, SCIE (Web of Science), Inspec, and other databases.

#### Journal Rank:

JCR - Q1 (Mathematics, Interdisciplinary Applications) /  
CiteScore - Q1 (Analysis)

#### Rapid Publication:

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).