

Special Issue

Novel Numerical Solutions of Fractional PDEs

Message from the Guest Editors

During the past few decades, fractional partial differential equations (PDEs) have been widely used in biology, materials science, molecular dynamics and many other fields. In particular, time fractional PDEs, which are able to accurately describe the state or evolution with historical memory, have attracted much research interest in both theoretical and numerical aspects. Due to the non-local property of fractional derivatives, the development of numerical algorithms for the fractional PDEs faces new challenges and opportunities: (1) Analysis and numerical treatment of the weak singularity of solutions; (2) Fast and parallel algorithms; (3) Applications and simulations for real-world models. In this Special Issue, of particular interest are the following subtopics:

- Fractional ordinary differential equations;
- Fractional PDEs;
- Nonlocal modeling and computation;
- Integro-differential equations;
- Fast and parallel methods;
- Convolution quadrature;
- Finite element methods;

Guest Editors

Prof. Dr. Xiaoping Xie
Dr. Xian-Ming Gu
Dr. Maohua Ran

Deadline for manuscript submissions

closed (31 July 2022)



Fractal and Fractional

an Open Access Journal
by MDPI

Impact Factor 3.3
CiteScore 6.0



mdpi.com/si/86297

Fractal and Fractional
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
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).