Special Issue

Fractional Differential Operators with Classical and New Memory Kernels

Message from the Guest Editors

Fractional calculus has a rich history in the modelling of nonlinear problems in physics and engineering. Formally, the apparatus of fractional calculus includes a variety of fractional-order differintegral operators, such as the ones named after Riemann, Liouville, Weyl, Caputo, Riesz, Erdelyi, Kober, etc., which give rise to a variety of special functions. Beyond this, some new trends in modelling involve integral operators with nonsingular kernels, as well as operators defined on fractal sets. These were proposed to model dissipative phenomena that cannot be adequately modelled by classical operators. This Special Issue addresses contemporary modeling problems in science and engineering involving fractional differential operators with classical and new memory kernels. This is a call to authors involved in modeling with new and classical fractional differential operators to share their results in fractional modelling theory and applications.

Guest Editors

Dr. Dimiter Prodanov 1. EHS and NERF, Interuniversity Microelectronics Center (Imec), 3001 Leuven, Belgium 2. IICT, Bulgarian Academy of Sciences, 1113 Sofia, Bulgaria

Prof. Dr. Jordan Hristov

Department of Chemical Engineering, University of Chemical Technology and Metallurgy, 1756 Sofia, Bulgaria

Deadline for manuscript submissions

closed (30 April 2025)



an Open Access Journal by MDPI

Impact Factor 3.3 CiteScore 6.0



mdpi.com/si/167124

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

mdpi.com/journal/ fractalfract



Fractal and Fractional

an Open Access Journal by MDPI

Impact Factor 3.3 CiteScore 6.0





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 peerreviewed, 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 19.9 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).