

Special Issue

Symmetry in Computational and Mathematical Methods of Fractional Calculus

Message from the Guest Editor

The purpose of this Special Issue is to provide a means to communicate recent progresses in the field of fractional-order integro-differential operators and some of its most important symmetry properties. We invite researchers in this area to submit high-quality papers which stress the development of new computational and mathematical methods in fractional calculus.

Applications of those methods to the analysis of the existence, uniqueness, symmetry, and regularity of the solutions of systems consisting of fractional integro-differential equations is an important topic considered in this work. The development and rigorous analysis of numerical methods to approximate solutions of systems of fractional-order equations is also a relevant topic in this Special Issue. Among others, optimization problems where the objective or the constraints are described in terms of fractional derivatives, the derivations of exact analytic solutions of systems of partial integro-differential equations, and the determination of new conservation and symmetry laws of these systems are all topics which are considered in this work.

Guest Editor

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About the Journal

Message from the Editor-in-Chief

Symmetry is ultimately the most important concept in natural sciences. It is not surprising then that very basic and fundamental research achievements are related to symmetry. For instance, the Nobel Prize in Physics 1979 (Glashow, Salam, Weinberg) was received for a unified symmetry description of electromagnetic and weak interactions, while the Nobel Prize in Physics 2008 (Nambu, Kobayashi, Maskawa) was received for the discovery of the mechanism of spontaneous breaking of symmetry, including CP symmetry. Our journal is named *Symmetry* and it manifests its fundamental role in nature.

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