Special Issue

Advanced Theoretical and Numerical Methods for Fractional Differential and Difference Equations

Message from the Guest Editor

Fractional differential and difference equations (FDEs) have emerged as a powerful framework for modeling complex dynamical systems with memory, hereditary effects, and anomalous diffusion—phenomena commonly found in physics, biology, finance, and engineering. As interest in fractional models grows, so too does the need for deeper theoretical understanding and more effective computational techniques. This Special Issue aims to bring together cutting-edge research that advances both the theoretical analysis and numerical treatment of FDEs. We welcome original research articles. Topics of interest include, but are not limited to, the following:

- Fundamental theory and qualitative analysis of fractional systems;
- Numerical schemes for time-fractional and space-fractional equations;
- Convergence and error analysis of algorithms;
- Applications in science and engineering driven by fractional modeling;
- Methods for variable-order and distributed-order FDEs.

Guest Editor

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Deadline for manuscript submissions

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About the Journal

Message from the Editor-in-Chief

The journal *Mathematics* publishes high-quality, refereed papers that treat both pure and applied mathematics. The journal highlights articles devoted to the mathematical treatment of questions arising in physics, chemistry, biology, statistics, finance, computer science, engineering and sociology, particularly those that stress analytical/algebraic aspects and novel problems and their solutions. One of the missions of the journal is to serve mathematicians and scientists through the prompt publication of significant advances in any branch of science and technology, and to provide a forum for the discussion of new scientific developments.

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