Numerical Methods for Differential Equations and Related Inverse Problems

Guest Editor:

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Message from the Guest Editor

Dear Colleagues,

The Special Issue aims to encompass a wide range of topics involving numerical methods for partial differential equations (PDEs), fractional differential equations (FDEs), and integro-differential equations.

We particularly encourage submissions featuring novel algorithms or applications based on mesh-based methods, including finite difference, finite volume, finite element, discontinuous Galerkin and spectral methods. Additionally, contributions exploring the development of meshfree methods, such as smooth-particle hydrodynamics, partition of unity methods, and the method of particular solutions, are welcomed.

In light of the rapid advancements in machine learning and artificial intelligence algorithms and their diverse applications, we are especially interested in papers that apply these methods to solve various differential equations models. Submissions that offer novel insights into machine-learning-based PDE and FDE solvers are highly encouraged.

Furthermore, this Special Issue also seeks excellent papers on numerical methods for solving inverse problems related to differential equations.

Special Issue

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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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