

Special Issue

Advances in Stochastic Differential Equations and Applications

Message from the Guest Editor

Stochastic differential equations (SDEs) serve as a fundamental tool in modeling dynamical systems influenced by random effects, with wide-ranging applications in science, engineering, finance, and beyond. This Special Issue aims to highlight recent advances in the theory, analysis, and application of stochastic differential equations and related mathematical frameworks. We invite high-quality original research papers and comprehensive reviews on topics including, but not limited to, the following:

- Theoretical and numerical methods for stochastic and impulse differential equations;
- Stochastic control systems, including variable structure control;
- Complex systems and network models under stochastic dynamics;
- Distributed parameter systems in stochastic contexts;
- Fractional order differential equations and their stochastic counterparts;
- Control and modeling of unmanned systems influenced by stochastic factors;

This Special Issue provides a platform to explore novel methodologies, interdisciplinary approaches, and practical applications that deepen the understanding and extend the applicability of stochastic differential equations and their generalizations.

Guest Editor

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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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manuscripts are peer-reviewed and a first decision is provided to authors approximately 18.4 days after submission; acceptance to publication is undertaken in 2.4 days (median values for papers published in this journal in the first half of 2025).