

Special Issue

Probability Theory, Statistical Inference and Stochastic Analysis with Applications

Message from the Guest Editor

The interplay between probability, statistics, and stochastic modeling has advanced rapidly, driven by challenges in finance, machine learning, physics, biology, and high-dimensional data. This Special Issue invites high-quality contributions in probability theory, statistical inference, and stochastic analysis, focusing on new methods, theoretical advances, and applications to complex stochastic systems. We welcome work on limit theorems, concentration inequalities, empirical processes, stochastic calculus, random fields, high-dimensional and nonparametric inference, Bayesian and robust methods, statistical learning, dependence structures, stochastic processes, and functional data. Applied studies using probabilistic and statistical tools for stochastic differential equations (SDEs/SPDEs), nonstationary systems, stochastic optimization, random networks, and uncertainty quantification are encouraged, especially in engineering, environmental science, epidemiology, and machine learning. This Special Issue aims to link theory and applications and highlight the role of stochastic methods in modeling uncertainty and complexity.

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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