Special Issue

Advances in Nonlinear Analysis: Theory, Methods and Applications

Message from the Guest Editor

The dynamics of many social and natural systems are nonlinear, requiring methods from nonlinear dynamics, chaos theory, and stochastic processes. These nonlinear models have rapidly advanced, allowing us to describe and predict processes in various systems. Mathematical modeling offers testable forecasts and tools for protocol design and evaluation. Agent-based models have become important for describing complex systems. When the number of agents is small and their behavior is less chaotic, these systems can be modeled with ordinary or partial differential equations. Deterministic modeling using differential equations is common, with various methods available for solving these equations. Solutions can provide valuable insights based on assumptions about their nature. This Special Issue aims to explore the nonlinear properties of natural and social systems using deterministic and stochastic models, along with methods from nonlinear dynamics, chaos theory, and stochastic modeling. It also seeks to investigate qualitative modeling systems and apply modern analytical and numerical methods to find new solutions for these systems.

Guest Editor

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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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