Special Issue

Nonlinear Dynamics, Chaos, and Mathematical Physics

Message from the Guest Editor

The applications of nonlinear dynamics and chaos theory span a wide range of disciplines, offering valuable insights into complex systems and phenomena.

In physics, chaotic behavior is observed in systems such as turbulent fluid flow and celestial mechanics. In engineering, the study of chaos aids in designing robust and efficient systems, particularly in fields like control theory and signal processing. Biological systems, such as neural networks, exhibit nonlinear dynamics, and chaos theory helps unravel the intricate patterns underlying these phenomena. Additionally, economics and finance use chaos theory, as it provides a framework for understanding the unpredictable nature of markets and economic systems. Disease dynamics, weather forecasting, ecological dynamics, and even social systems can be analyzed through the lens of nonlinear dynamics, highlighting the versatility and applicability of this theoretical framework across diverse scientific and practical domains.

This special issue welcomes submissions from outstanding scholars, including but not limited to related research fields.

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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