

Special Issue

Nonlinear Stability and Advanced Numerical Methods in Fluid and Hamiltonian Systems

Message from the Guest Editors

Fluid and Hamiltonian systems are fundamental to understanding a vast array of natural phenomena and engineering applications, from geophysical flows and plasma confinement to micro-scale transport and the design of advanced materials. The intricate nonlinear dynamics and stability behaviors inherent in these systems present enduring theoretical and computational challenges. This Special Issue, titled “Nonlinear Stability and Advanced Numerical Methods in Fluid and Hamiltonian Systems” aims to collate cutting-edge research that addresses these challenges. The scope of this issue encompasses both fundamental theoretical advances and innovative numerical methodologies. We seek contributions that explore nonlinear instability mechanisms, transition to turbulence, long-time dynamics, and the interplay among structure, stability, and dissipation. A key focus is the development and application of advanced numerical algorithms—including high-fidelity simulations, structure-preserving schemes, and multi-scale modeling—capable of accurately capturing the complex behavior of these systems.

Guest Editors

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Message from the Editor-in-Chief

Axioms is dedicated to the foundations (structure and axiomatic basis, in particular) of mathematical theories, not only from a crisp or strictly classical sense, but also from a fuzzy and generalized sense. This includes the more innovative current scientific trends, devoted to discover and solve new challenging problems. The prime goal of *Axioms* is to publish first-class, original research articles under an open access policy with minimal fees for the authors. We would be pleased to welcome you as one of our authors.

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