Special Issue

Numerical Methods and Modeling for Multiscale Problems and Applications

Message from the Guest Editors

The accurate and efficient modeling of multiscale systems remains one of the most compelling challenges in applied mathematics and computational science. From fluid dynamics and solid mechanics to environmental modeling and biological systems, multiscale phenomena are pervasive, characterized by interactions across spatial and temporal scales that defy traditional modeling and computational approaches. We welcome research that bridges the gap between theoretical developments and practical applications, fostering a dialogue between applied mathematicians, computational scientists, and engineers. Topics of interest include, but are not limited to, the following:

- High-order numerical schemes for hyperbolic and dispersive partial differential equations (PDEs).
- Novel methods for coupled systems and hybrid multiscale models.
- Computational strategies for systems exhibiting strong scale separation.
- Applications of multiscale modeling in fluid dynamics, continuum mechanics, and environmental systems.
- Advances in numerical solvers for non-linear PDEs in multiscale frameworks.

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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