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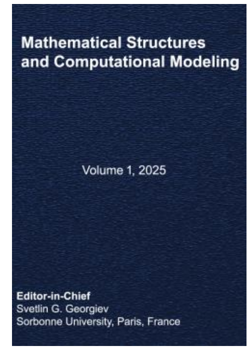

Editorial

Mathematical Structures and Computational Modeling: Bridging Theory and Computation in the Mathematical Sciences

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ABSTRACT

In this issue of *Mathematical Structures and Computational Modeling (MSCM)*, we present a set of original articles that reflect the journal's commitment to advancing rigorous mathematical theory alongside innovative computational modeling. From nonlinear PDEs and function spaces to number theory and time-scale calculus, this volume exemplifies the journal's vision of uniting classical analysis and modern computation in the service of solving complex scientific problems.

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Highlights of the Issue

We begin with **Derradji Guidad and Keltoum Bouhali**, who present an upper bound on the blow-up time for nonlinear wave equations with averaged damping. By introducing a weighted function space to overcome challenges posed by unbounded domains, they demonstrate how the concavity method can be extended to higher-order systems.

In a mathematically rich article, **George Athanasiou and collaborators** tackle the asymptotic inversion of Dirichlet series with significant implications for understanding the distribution of prime numbers. Their work fuses analytic number theory with advanced complex analysis and opens new pathways for estimating prime gaps and related functions under the Riemann Hypothesis.

The third article by **Svetlin G. Georgiev** explores the Fisher–Kolmogorov equation. Using a refined approach to establish global classical solutions, Georgiev identifies sufficient conditions for the existence of multiple solutions, contributing to the field of reaction-diffusion equations and their stability analysis.

Amin Benaissa Cherif and Fatima Zohra Ladrani offer a novel introduction to Riemann–Liouville fractional Sobolev spaces within time scale calculus. Their unifying approach bridges discrete and continuous analysis, laying foundational tools for the study of fractional dynamic systems.

The issue concludes with **Aissa Boukarou and Mohamad Biomy**, who analyze a coupled Majda–Biello system with damping. Using Fourier restriction norm spaces and conservation law estimates, they extend local well-posedness to the global regime and demonstrate bounds on analytic radius persistence in weighted Sobolev spaces.

Mission and Vision of MSCM

Mathematical Structures and Computational Modeling (MSCM) aims to be a distinguished open-access platform for cutting-edge research that connects abstract mathematical theory with real-world modeling. We are committed to publishing work that:

- Introduces novel analytical methods or function space frameworks.
- Explores the long-time behavior, blow-up, or stability of solutions to differential and integral equations.
- Develops or applies computational techniques to explore mathematical structures.
- Enhances theoretical understanding in areas such as time scales, fractional calculus, operator theory, and analytic number theory.

Our goal is to promote interdisciplinary thinking and create a space for collaboration between pure mathematicians, applied scientists, and computational theorists. MSCM accepts original research articles, review papers, brief communications, and well-structured theoretical expositions that illuminate current trends in analysis and computation.

A Call for Collaboration and Contribution

As MSCM continues to grow, we warmly invite researchers worldwide to contribute to our mission. Whether through rigorous theoretical work or impactful computational modeling, your research can help advance our understanding of mathematics and its role in solving contemporary scientific and engineering problems.

We also welcome reviewers and editorial collaborators who share our passion for high standards and academic excellence. Together, we can build MSCM into a leading voice in mathematical publishing.

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