

Topical Collection

Applied Mathematics for Emerging Trends in Mechatronic Systems

Message from the Collection Editors

We invite high-quality, original research contributions to the Topical Collection "Applied Mathematics for Emerging Trends in Mechatronic Systems". This interdisciplinary collection aims to explore how advanced mathematical methods are shaping the future of mechatronics. Modern mechatronic systems—from autonomous robots and AGVs to smart manufacturing and cyber-physical systems—demand rigorous modeling, robust control, and intelligent optimization. Scope and Topics of Interest include, but are not limited to, the following:

- Mathematical modeling and analysis of mechatronic components and systems;
- Nonlinear dynamics, stability, and control in electromechanical systems;
- Optimization methods for robotics, automation, and intelligent systems;
- Computational techniques and numerical methods in mechatronic design;
- System identification and data-driven modeling approaches;
- Control algorithm development and real-time embedded implementation;
- Applications of differential equations, linear algebra, and fractional calculus;
- Integration of AI techniques (e.g., neural networks, fuzzy logic) in control and modeling;
- Emerging applications in robotics, AGVs, Industry 4.0, and smart systems.

Collection Editors

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About the Journal

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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manuscripts are peer-reviewed and a first decision is provided to authors approximately 17.3 days after submission; acceptance to publication is undertaken in 2.8 days (median values for papers published in this journal in the second half of 2025).