

Special Issue

Advanced Mathematical Models in Engineering Design Optimization

Message from the Guest Editors

This Special Issue explores cutting-edge approaches that integrate sophisticated computational techniques to tackle high-dimensional, computationally expensive problems in engineering. The potential topics include (but are not limited to) the following:

- Surrogate-assisted design optimization techniques;
- Multi-fidelity surrogate modeling for efficient engineering simulations;
- Physics-informed neural networks in optimization frameworks;
- LLM-based automatic algorithm design for design optimization;
- Digital twins for real-time design optimization and monitoring;
- Generative design algorithms for innovative engineering solutions;
- Reliability-based design optimization under uncertainties;
- Bayesian optimization and uncertainty quantification in engineering;
- Topology optimization and additive manufacturing integration;
- Hybrid meta-heuristics with machine learning for complex designs;
- Multi-objective optimization in sustainable engineering systems;
- Data-driven approaches for high-dimensional optimization problems.

Guest 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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