

Special Issue

Advanced Mathematical Techniques in Topology Optimization

Message from the Guest Editors

This Special Issue aims to collate cutting-edge research and innovative approaches in the field of topology optimization, with a focus on exploring advanced mathematical techniques that can enhance the efficiency, accuracy, and applicability of topology optimization methods. The topics covered in this Special Issue include, but are not limited to: Reduced Order Modeling (ROM); Machine Learning (ML) applications in topology optimization; On-the-fly optimization strategies; Multi-scale modeling in topology optimization; Transient dynamic analysis in topology optimization; Contact problems and their impact on topology optimization; Integration of topology optimization with other fields, such as material science, computational fluid dynamics (CFD), and structural dynamics; Numerical methods and algorithms for topology optimization; Theoretical foundations and mathematical analysis of topology optimization; Industrial applications and case studies of topology optimization.

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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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