Special Issue

Advances in Topology Optimization for Advanced Manufacturing

Message from the Guest Editors

Topology optimization, when paired with advanced additive manufacturing (AM) techniques, opens new avenues for designing and fabricating highly efficient, lightweight, and complex structures. This Special Issue aims to showcase cutting-edge research and innovations in topology optimization, focusing on its integration with advanced manufacturing processes such as additive manufacturing, hybrid manufacturing, and Industry 4.0 technologies. We invite contributions that explore novel algorithms, multi-material optimization, manufacturability constraints, AM-aware design strategies, cellular or lattice structures, functionally-graded materials, and the integration of simulation with real-time process data. Submissions employing hybrid modelling, data-driven or AI-assisted topological design, and studies facilitating the transition from computational models to practical AM systems are particularly encouraged. Together, these efforts aim to drive innovation in AM design, bridging theoretical advances with engineering practice.

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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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