

ADVANCES IN COMPUTATIONAL ANALYSIS FOR 3D CONSTRUCTION PRINTING

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ABSTRACT

3D printing technologies are driving innovation across several industrial sectors due to their ability to produce complex geometries, minimize material usage, and achieve high-performance structures. Consequently, both the academic and technical communities are increasingly interested in this technology, recognizing its vast potential. In the field of computational analysis for 3D construction printing, numerous ongoing challenges exist, particularly in the areas of parametric modelling, printability analysis, and performance evaluation of printed components.

This special issue is open to contributions that address these key areas. In particular, the mini-symposium welcomes submissions related to:

1. **Parametric Modelling:** Contributions that focus on parametric systems, particularly those that integrate form finding and preliminary performance analysis (e.g., printability, thermal, acoustic, and optimization aspects) within visual scripting software environments.
2. **Printability Analysis:** Research aimed at improving the rheological properties of materials or optimizing print settings to enhance the quality and performance of the printed output.
3. **Performance Evaluation:** Advanced performance analysis using Finite Element Method (FEM) tools. Topics may include structural issues related to material anisotropy, as well as thermal, acoustic properties, and topological optimization challenges.

This mini-symposium invites researchers and professionals to explore and discuss the latest advancements in these areas, fostering collaboration between academia and industry to further the development of 3D printing technologies.