



## Additive Manufacturing: Topology Optimization and Cellular Microstructures

Guest Editors:

**Prof. Dr. Georgios E Stavroulakis**

Institute of Computational Mechanics and Optimization, School of Production Engineering and Management, Technical University of Crete, 73100 Chania, Greece

**Dr. Loucas Papadakis**

Department of Mechanical Engineering, Frederick University, Nicosia 1036, Cyprus

**Dr. Ioannis Ntintakis**

Department of Mechanical Engineering, Hellenic Mediterranean University, 71410 Heraklion, Greece

Deadline for manuscript submissions:

**closed (20 October 2022)**

### Message from the Guest Editors

Dear Colleagues,

Topology optimization (TO) is a mathematical method that spatially optimizes the distribution of material within a defined domain, by fulfilling predefined constraints and, if required, the cost function. Additive manufacturing (AM) is a well-established technology already applied for the fabrication of structural components with nearly no geometric constraints. The combination of TO and AM allows for the creation of optimized parts with reduced mass and increased stiffness.

The purpose of this Special Issue is to encourage the two scientific communities of additive manufacturing and topology optimization to focus on this novel and rapidly growing research area. In addition to the above fields, example topics may include new auxetic materials applications, machine learning applications, and novel algorithms linking topology optimization with additive manufacturing. This issue will publish original research papers, short reports, and reviews related to cellular structures fabricated with 3D printing and topology optimization methods for additive manufacturing.





an Open Access Journal by MDPI

## Editor-in-Chief

**Prof. Dr. Giulio Nicola Cerullo**  
Dipartimento di Fisica,  
Politecnico di Milano, Piazza L.  
da Vinci 32, 20133 Milano, Italy

## Message from the Editor-in-Chief

As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal *Applied Sciences* has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

## Author Benefits

**Open Access:** free for readers, with article processing charges (APC) paid by authors or their institutions.

**High Visibility:** indexed within Scopus, SCIE (Web of Science), Ei Compendex, Inspec, Embase, CAPlus / SciFinder, and other databases.

**Journal Rank:** JCR - Q2 (Engineering, Multidisciplinary) / CiteScore - Q1 (General Engineering)

## Contact Us

---

*Applied Sciences* Editorial Office  
MDPI, Grosspeteranlage 5  
4052 Basel, Switzerland

Tel: +41 61 683 77 34  
[www.mdpi.com](http://www.mdpi.com)

[mdpi.com/journal/applsci](http://mdpi.com/journal/applsci)  
[appls@mdpi.com](mailto:appls@mdpi.com)  
[X@Appls](https://twitter.com/appls)