



## AI-Based Holistic Structural Analysis and Designs

Guest Editor:

**Prof. Dr. Won-Kee Hong**  
College of Engineering, Kyung  
Hee University, Seoul, Korea

Deadline for manuscript  
submissions:  
**closed (20 July 2023)**

### Message from the Guest Editor

Dear Colleagues,

Artificial neural network (ANN)-based designs are receiving attentions from many researchers around the world recently. ANNs demonstrate a learning and memory capability similar to that of the human brain, and we can use this extraordinary capability when designing structural systems. ANNs are developed to map inputs into outputs based on large structural design datasets for engineering applications rather than being based on structural mechanics or knowledge. This Special Issue invites papers investigating holistic structural designs with engineering applications based on ANNs. During designs, cost of materials and manufacture of concrete beam and columns can be also optimized, while considering constraints according to design codes and engineer's needs. Large datasets are generated based on structural mechanics-based software to train ANNs to optimize objective functions.





an Open Access Journal by MDPI

## Editor-in-Chief

### Prof. Dr. Maryam Tabrizian

James McGill Professor,  
Professor of Biomedical  
Engineering, Professor of  
Bioengineering, Professor of  
Experimental Surgery,  
Department of Biomedical  
Engineering, Faculty of  
Medicine/Faculty of Dentistry,  
McGill University, Duff Medical  
Science Building, 3775 University  
Street, Montreal, QC H3A 2B4,  
Canada

## Message from the Editor-in-Chief

*Materials* (ISSN 1996-1944) was launched in 2008. The journal covers twenty-five comprehensive topics: biomaterials, energy materials, advanced composites, advanced materials characterization, porous materials, manufacturing processes and systems, advanced nanomaterials and nanotechnology, smart materials, thin films and interfaces, catalytic materials, carbon materials, materials chemistry, materials physics, optics and photonics, corrosion, construction and building materials, materials simulation and design, electronic materials, advanced and functional ceramics and glasses, metals and alloys, soft matter, polymeric materials, quantum materials, mechanics of materials, green materials, general. *Materials* provides a unique opportunity to contribute high quality articles and to take advantage of its large readership.

## 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), PubMed, PMC, Ei Compendex, CaPlus / SciFinder, Inspec, Astrophysics Data System, and other databases.

**Journal Rank:** JCR - Q2 (*Metallurgy & Metallurgical Engineering*) / CiteScore - Q2 (*Condensed Matter Physics*)

## Contact Us

---

*Materials*  
MDPI, St. Alban-Anlage 66  
4052 Basel, Switzerland

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

[mdpi.com/journal/materials](http://mdpi.com/journal/materials)  
[materials@mdpi.com](mailto:materials@mdpi.com)  
[@Materials\\_Mdpi](https://twitter.com/Materials_Mdpi)