Special Issue

Novel Approaches in the Design, Simulation, and Manufacturing for Processes and Systems

Message from the Guest Editors

The application of novel approaches in the design, simulation, and manufacturing of engineering products ensures the effectiveness of manufacturing systems. Modeling the materials' structure leads to the production of a predetermined set of their properties and ensures the designed parts' reliability. This modeling is essential for cutting tools, fixtures and tooling, friction pairs, highly loaded parts of machines and equipment, etc. Implementation of the abovementioned issues must ensure the functionality and assigned operating parameters of the designed parts and units in terms of wear resistance, stress–strain modes and dynamic behavior, loading capacity, etc. Advanced material processing approaches can be applied (plasma deposition, electro spark, chemical-thermocycling treatment, strengthening, etc.). Additionally, novel approaches can be implemented in designing advanced materials (polymers, composites, ceramics, nanomaterials, etc.). At the design stage of materials, it is essential to predict the functional, rheological, and tribological properties using numerical simulation and experimental studies.

Guest Editors

Prof. Dr. Vitalii Ivanov

Prof. Dr. Ivan Pavlenko

Prof. Dr. Szymon Wojciechowski

Dr. Jinyang Xu

Deadline for manuscript submissions

closed (20 March 2025)

Materials

an Open Access Journal by MDPI

Impact Factor 3.2
CiteScore 6.4
Indexed in PubMed

mdpi.com/si/165101

Materials
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
materials@mdpi.com

mdpi.com/journal/materials

Materials

an Open Access Journal by MDPI

Impact Factor 3.2
CiteScore 6.4
Indexed in PubMed

mdpi.com/journal/materials

MDPI

About the Journal

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.

Editor-in-Chief

Prof. Dr. Maryam Tabrizian
1. Department of Biomedical Engineering, Faculty of Medicine and Health Sciences, McGill University, Montreal, QC H3A 2B6, Canada
2. Faculty of Dentistry and Oral Health Sciences, McGill University, 3640 Rue University, Montreal, QC H3A 0C7, Canada

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 and Metallurgical Engineering) / CiteScore - Q1 (Condensed Matter Physics)