Special Issue

Development and Application of High-Performance Support Structures and Functional Materials for Extreme Environment

Message from the Guest Editors

As globalization and technological advancements progress, the demand for infrastructure that is capable of withstanding extreme environments—such as high temperatures and humidity, freeze–thaw cycles, severe corrosion, and deep-sea high pressure—continues to rise. Key projects, including polar research bases, deep-sea energy exploration, island reef protection, and disaster response facilities, face unprecedented challenges in meeting stringent requirements for adaptability and durability. Traditional structural support systems and conventional building materials often exhibit significant limitations in such environments, including rapid performance degradation, insufficient durability, poor corrosion resistance, and a lack of intelligent functionality. These shortcomings make them inadequate for the long-term service life required in extreme conditions. Consequently, there is an urgent need to develop high-performance support structures and functional materials that can adapt to environmental changes and dynamically adjust their performance to maintain structural integrity.

Guest Editors

Prof. Dr. Yi Luo

Dr. Hangli Gong

Dr. Gang Wang

Dr. Wangwen Huo

Deadline for manuscript submissions

closed (20 July 2025)

Materials

an Open Access Journal by MDPI

Impact Factor 3.2
CiteScore 6.4
Indexed in PubMed

mdpi.com/si/224281

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)