Special Issue

Advances in the Mechanical Behavior of Biopolymer Materials

Message from the Guest Editor

The growing demand for polymer biomaterials and polymer-based composites is driven by their unique properties, biodegradability, and strong potential for specialized applications, particularly in medicine. Recent advances in material design, processing technologies, and additive manufacturing have enabled the development of biopolymers with tailored mechanical properties, improved strength, and enhanced functional performance, tailored to meet specific application requirements. This Special Issue focuses on the latest breakthroughs in understanding and enhancing the mechanical behaviour of biopolymer materials, including elasticity, plasticity, fracture mechanics, and long-term durability. Key research areas include:

- Microstructural control and reinforcement strategies (e.g., nanofillers, fibre reinforcement, blending);
- Processing–structure–property relationships in biopolymer composites;
- Environmental and ageing effects (e.g., humidity, temperature, biodegradation) on mechanical performance;
- Advanced characterisation methods and computational modelling for predicting mechanical response.

Guest Editor

Dr. Magdalena Kobielarz

Department of Mechanics, Materials and Biomedical Engineering, Wrocław University of Science and Technology, 50-370 Wrocław, Poland

Deadline for manuscript submissions

20 February 2026

Materials

an Open Access Journal by MDPI

Impact Factor 3.2
CiteScore 6.4
Indexed in PubMed

mdpi.com/si/248394

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

mdpi.com/journal/materials

MDPI

Materials

an Open Access Journal by MDPI

Impact Factor 3.2
CiteScore 6.4
Indexed in PubMed

mdpi.com/journal/materials

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)