Special Issue

Polymers and Polymer Composite Structures for Energy Absorption

Message from the Guest Editor

The design of polymeric and composite structures with high energy absorption efficiency is crucial in modern industry, particularly in the automotive, aerospace, construction, and safety sectors. In response to increasing demands for protection against impacts, vibrations, and other dynamic loads, the development of energy-absorbing materials has become a priority. Optimizing these structures involves designing the geometry and material configurations to maximize energy absorption capacity. Both experimental methods and advanced simulation techniques, such as FEM/SPH, are used for this purpose. The selection of appropriate materials is essential; polymers and composites are particularly attractive due to their flexibility, low weight, and the ability to modify their mechanical properties. Additives such as carbon, glass, or aramid fibers, as well as ceramic and metallic reinforcements, enhance their energy-damping properties. Three-dimensional printing technologies enable the creation of complex geometries with controlled pore arrangements that effectively absorb energy while remaining lightweight.

Guest Editor

Dr. Dariusz Pyka

Department of Mechanics, Materials and Biomedical Engineering, Faculty of Mechanical Engineering, Wrocław University of Science and Technology, Smoluchowskiego 25, 50-372 Wrocław, Poland

Deadline for manuscript submissions

30 September 2025

Polymers

an Open Access Journal by MDPI

Impact Factor 4.9
CiteScore 9.7
Indexed in PubMed

mdpi.com/si/230743

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

mdpi.com/journal/polymers

Polymers

an Open Access Journal by MDPI

Impact Factor 4.9
CiteScore 9.7
Indexed in PubMed

mdpi.com/journal/polymers

MDPI

About the Journal

Message from the Editor-in-Chief

Since its foundation in 2009, *Polymers* has developed into an internationally renowned, extremely successful open access journal. The editorial team and the editorial board dedicatedly combine open-access publishing and high-quality rigorous peer reviewing. The performance of the journal has proven this strategy to be well-suited and highly successful. This is reflected in the increasing impact factor of *Polymers*, the most recent one being 4.7.

I would like to invite you to contribute to the success of the journal by sending us your high quality research papers. We would be pleased to welcome you as one of our authors.

Editor-in-Chief

Prof. Dr. Alexander Böker
Lehrstuhl für Polymermaterialien und Polymertechnologie, University of Potsdam, 14476 Potsdam-Golm, Germany

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, PubMed, PMC, FSTA, CAPlus / SciFinder, Inspec, and other databases.

Journal Rank:

JCR - Q1 (Polymer Science) / CiteScore - Q1 (General Chemistry)