Special Issue

Advances in Thin-Film Composites: Mechanisms, Recent Developments and Applications

Message from the Guest Editors

Thin-film composites (TFCs) enable the design of surfaces with enhanced mechanical and functional properties without compromising the bulk properties of the material. These coatings are particularly relevant in industries where high performance is required, such as the automotive, aerospace, electronics, and biomedical sectors. TFCs stand out by offering improved hardness, tribological performance, and high resistance to oxidation and corrosion at elevated temperatures. The nanoscale interactions between materials in TFCs result in synergistic effects that exceed the simple sum of the constituent properties, making them ideal for advanced applications where multiple performance factors are critical. We welcome original research papers, reviews, and case studies that explore the synthesis, characterization, and practical applications of thin-film composites. Papers discussing interdisciplinary innovations or presenting novel insights into the nano-mechanical behavior and performance of TFCs in real-world applications are particularly encouraged. We aim to advance our understanding and capabilities in creating high-performance materials for the next generation of technology.

Guest Editors

Prof. Dr. Sandra Carvalho

Department of Mechanical Engineering, University of Coimbra, Rua Luis Reis Santos, 3030-788 Coimbra, Portugal

Dr. Susana Devesa

CEMMPRE, ARISE, Department of Mechanical Engineering, University of Coimbra, Rua Luís Reis Santos, 3030-788 Coimbra, Portugal

Deadline for manuscript submissions

20 January 2026

Materials

an Open Access Journal by MDPI

Impact Factor 3.2
CiteScore 6.4
Indexed in PubMed

mdpi.com/si/219942

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)