Special Issue

Radiation Damage and Radiation Defects of Materials

Message from the Guest Editors

Radiation tolerance is critical for the safe application of materials in nuclear power generation, fusion energy, space exploration, high-energy physics experiments, and related fields. Radiation damage typically initiates with the production of Frenkel pairs. Subsequent aggregation of excess self-interstitial atoms (SIAs) and vacancies leads to the formation of secondary defects, including dislocation loops, stacking fault tetrahedra, bubbles, and voids, ultimately causing material degradation. Understanding the underlying mechanisms of radiation damage, encompassing the generation, evolution, interaction, and recovery of irradiation-induced defects, and their impact on material properties, is therefore essential. It is with great pleasure that we announce the launch of a Special Issue entitled "Radiation Damage and Radiation Defects of Materials" in Materials. This Special Issue aims to provide comprehensive insights into the characterization of irradiated materials using neutrons, ions, electrons, and plasma. We cordially invite you to submit your original research manuscripts for consideration in this Special Issue.

Guest Editors

Dr. Wentuo Han

School of Materials Science and Engineering, University of Science and Technology Beijing, Beijing 10083, China

Dr. Yifan Zhang

School of Materials Science and Engineering, Hefei University of Technology, Hefei 230009, China

Deadline for manuscript submissions

20 August 2026

Materials

an Open Access Journal by MDPI

Impact Factor 3.2
CiteScore 6.4
Indexed in PubMed

mdpi.com/si/246755

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 Editorial Board

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.

Editors-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

Prof. Dr. Yuguang Ma
State Key Laboratory of Luminescent Materials and Devices, South China University of Technology, Guangzhou 510640, China

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)

MDPI