Special Issue

Electrochemical Corrosion of Materials: Mechanisms and Protection

Message from the Guest Editor

Electrochemical corrosion remains a significant challenge in industries such as energy, transportation, and marine engineering, resulting in substantial economic losses and safety risks. Understanding its mechanisms and developing effective protection strategies are essential for enhancing material durability and sustainability. This Special Issue is dedicated to advancing the fundamental understanding of various corrosion mechanisms, spanning the fields of energy, transportation, and engineering. It also seeks to promote innovations in protection technologies, such as advanced coatings, corrosion-resistant alloys, efficient inhibitors, and optimized cathodic protection systems. We invite contributions addressing the following:

- Mechanistic studies: atomistic simulations, electrochemical kinetics, and interfacial processes.
- Advanced protection: smart coatings, efficient inhibitors, self-healing materials, and bio-inspired strategies.
- Environmental impacts: corrosion in extreme conditions (high temperature, H2S/CO2 environments).
- Sustainability: low-toxicity inhibitors and lifecycle assessments of protective systems.

Guest Editor

Dr. Wencheng Wang
College of Civil Engineering, Fuzhou University, Fuzhou 350108, China

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/245288

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)

MDPI