Special Issue

Advances in Atomic Layer Deposition Process, Applications and Modeling

Message from the Guest Editor

Atomic Layer Deposition (ALD), with its precise control over the deposition of thin, conformal films at the atomic scale, is widely used for surface and interface modification, as well as for enhancing oxidation resistance in metals and functional materials. This Special Issue will explore the diverse applications of ALD, particularly in the enhancement in lithium (Li) and sodium (Na)-ion batteries, as well as solid-state batteries. Additionally, it will investigate various ALD film deposition processes and their influence on material properties and performance. Furthermore, the Special Issue will examine the failure mechanisms of materials before and after ALD modification, in conjunction with electron microscopy characterization. Advanced modeling approaches will also be discussed, offering a holistic understanding of how ALD can be optimized for next-generation energy storage technologies. This Special Issue is designed to provide a comprehensive overview of the latest advancements in ALD, focusing on its potential to revolutionize various fields.

Guest Editor

Dr. Xiaopeng Cheng

Faculty of Materials and Manufacturing, Beijing University of Technology, Beijing 100124, China

Deadline for manuscript submissions

10 November 2026

Materials

an Open Access Journal by MDPI

Impact Factor 3.2
CiteScore 6.4
Indexed in PubMed

mdpi.com/si/229405

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

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