Special Issue

Physical and Mechanical Properties of Austempered Ductile Iron (ADI)

Message from the Guest Editors

Austempered Ductile Iron (ADI) is recognized as a strategic foundry material for advanced engineering, offering an excellent combination of high mechanical strength, outstanding fracture toughness, and good ductility that makes it a cost-effective alternative to quenched-and-tempered steels. This Special Issue is dedicated to advancing ADI research to bridge the gap between materials science and application needs, aiming to elucidate the strengthening mechanisms and the failure behaviour through investigating the relationship between retained austenite stability and critical in-service properties, such as tensile and fatigue strength and wear resistance. The work collected here ranges from computational modelling to advanced experimental analysis, offering a multidisciplinary perspective to optimize thin-section processes with new heat treatment techniques and alloy modifications that ensure microstructural homogeneity, essential for maximizing the weight reduction potential of thin-walled components and analysing in-service behaviours that provide robust data on the response of ADI to extreme operating conditions and dynamic loads.

Guest Editors

Dr. Giuliano Angella

Unit of Milano, Research Institute CNR-ICMATE, Via R. Cozzi 53, 20125 Milan, Italy

Prof. Dr. Marcin Górny

Faculty of Foundry Engineering, AGH University of Krakow, ul. Reymonta 23, 30-059 Krakow, Poland

Deadline for manuscript submissions

20 June 2026

Materials

an Open Access Journal by MDPI

Impact Factor 3.2
CiteScore 6.4
Indexed in PubMed

mdpi.com/si/262277

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 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)