Special Issue

Additive Manufacturing of Metallic Porous Components in Electrochemical Systems

Message from the Guest Editors

Electrochemical energy and conversion devices, such as fuel cells, electrolyzers and batteries, are expected to play a key role in the decarbonization of the energy system during this century. Additive manufacturing of metallic porous components is a powerful approach for the design of tailored components to reduce electrical contact resistances, enhance two-phase transport, improve mechanical integrity, and create durable interfaces, among other benefits. This trend is reflected in the exponential growth of the number of publications related to “printed electrochemical devices” in the last decade. Additive manufacturing can also provide the following innovative solutions along the value chain for the design of next-generation electrochemical devices: (1) complex geometries, design freedom, fast prototyping, cost-efficiency, automated fabrication, and material saving; (2) the integration of modeling and numerical methods in the design cycle; (3) high performance and extended durability; and (4) a ubiquitous availability.

Guest Editors

Dr. Pablo A. García Salaberri

Research Institute for Sustainability Technologies, Universidad Rey Juan Carlos, Madrid 28933, Spain

Dr. Julia Ureña Alcázar

Centro Tecnológico Metalmecánico y del Transporte (CETEMET), Departamento de Materiales Avanzados, Parque Empresarial Santana, Avenida Primero de Mayo s/n, 23700 Linares, Spain

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/231554

Materials
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
materials@mdpi.com

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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

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