

## Special Issue

# Polymer Foams and Their Multifunctional Application

### Message from the Guest Editor

Polymer foams offer lightweight, multifunctional solutions across aerospace, transportation, electronics, and healthcare due to their low density, tunable structures, and diverse chemistries. Advances in nanocomposites, supercritical foaming, additive manufacturing, and machine learning are enabling smarter, sustainable foam systems. This Special Issue invites original research and reviews addressing formulation–process–structure–property–performance relationships with translational impact.

Topics of interest include:

- Sustainable systems;
- Micro/nano-cell architecture, gradients/anisotropy, sandwich designs, and multifunctionality (thermal management, EMI shielding, energy absorption, sensing, self-healing, and biomedical);
- Processing and manufacturing (physical/chemical foaming, extrusion/injection/batch foaming, reactive foaming, and additive manufacturing);
- Multiscale characterization and reliability;
- Modeling, simulation, and machine learning;
- Service performance and standardized validation.

Submissions should include reproducible methods, quantitative analysis, mechanistic or modeling support, and application-relevant benchmarking.

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### Guest Editor

Dr. Jialong Chai

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### Deadline for manuscript submissions

20 December 2026



## Materials

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## 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.

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### Editor-in-Chief

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