Special Issue

Phase Change Materials (PCM) for Thermal Energy Storage

Message from the Guest Editors

Phase-change materials (PCMs) can store and release heat via the phase transition process. Compared with conventional energy storage technology, phase-change energy storage materials possess significant advantages, such as a high thermal storage density, a low cost and excellent chemical stability, which can effectively enhance energy utilization and optimize the energy structure. In terms of physical properties, the phase-change temperature of PCMs should be within the operating temperature range required by the application, and the latent heat, specific heat, density and thermal conductivity of PCMs should be optimized as much as possible in the unit volume. In terms of chemical properties, PCMs should have good chemical stability and non-corrosive, non-toxic, non-flammable and explosive characteristics. In addition, cost and availability are two economic indicators that are of concern when PCMs are applied in practice. This Special Issue aims to explore the innovative development of PCM materials for thermal energy storage applications. Both original research papers and reviews are welcome.

Guest Editors

Dr. Xiao Chen

Institute of Advanced Materials, Beijing Normal University, Beijing 100875, China

Dr. Kunjie Yuan

School of Materials Science and Technology, University of Science and Technology Beijing, Beijing 100083, China

Deadline for manuscript submissions

closed (10 July 2025)

Materials

an Open Access Journal by MDPI

Impact Factor 3.2
CiteScore 6.4
Indexed in PubMed

mdpi.com/si/180361

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.

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

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