

Special Issue

Modelling Advanced Materials and Systems for Thermal Energy Storage

Message from the Guest Editors

Thermal Energy Storage (TES) technologies are essential for moving towards a more reliable and competitive exploitation of intermittent sources of heat. In this regard, one of the most crucial aspects is the material adopted to store the thermal energy. A relevant approach for short-term TES is based on phase change materials, which can ensure higher energy density than traditional sensible heat storage systems while keeping low cost and high cyclability. In these composites, micro- or nano-fillers are introduced in the base TES material, to enhance its effective properties. The current challenge is predicting the heat and mass transfer and thermal storage performance throughout the different scales of interest, thus correlating the molecular features of TES materials with the effective response of TES systems. Keywords

- Thermal energy storage
- Latent heat storage
- Thermochemical heat storage
- Phase change materials
- Composite materials
- Sorption materials
- Molecular dynamics
- Mesoscopic modelling
- Continuum modelling
- System modelling

Guest Editors

Dr. Matteo Fasano

Department of Energy, Politecnico di Torino, Corso Duca degli Abruzzi 24, 10129 Torino, Italy

Dr. Matteo Morciano

Department of Energy, Politecnico di Torino, 10129 Torino, Italy

Deadline for manuscript submissions

closed (20 January 2022)



Applied Sciences

an Open Access Journal
by MDPI

Impact Factor 2.5
CiteScore 5.5



mdpi.com/si/69617

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

[mdpi.com/journal/
applsci](https://mdpi.com/journal/applsci)





Applied Sciences

an Open Access Journal
by MDPI

Impact Factor 2.5
CiteScore 5.5



[mdpi.com/journal/
applsci](https://mdpi.com/journal/applsci)



About the Journal

Message from the Editor-in-Chief

As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal *Applied Sciences* has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

Editor-in-Chief

Prof. Dr. Giulio Nicola Cerullo
Dipartimento di Fisica, Politecnico di Milano, Piazza L. da Vinci 32,
20133 Milano, Italy

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), Ei Compendex, Inspec, Embase, CAPIus / SciFinder, and other databases.

Journal Rank:

JCR - Q2 (Engineering, Multidisciplinary) / CiteScore - Q1 (General Engineering)