Special Issue

Materials for Solar Thermal Energy Conversion and Storage

Message from the Guest Editor

Solar energy is one of the most important sources for future electrical power supply. Concentrated solar technology together with suitable thermal energy storage systems may provide baseload power. Moreover, concentrated solar energy can be used for high-temperature process technology, e.g., for the production of fuels or chemicals. Material requirements in the field of concentrated solar energy are manifold: besides thermal, thermomechanical and chemical stability, lifetime and environmental resistance, appropriate functional properties (optical, chemical, and thermal properties) must also be considered. In this Special Issue, we invite submissions focused on CSP-related materials in a broader sense. In particular, the following topics will be covered:

- Absorber materials
- Mirrors and mirror coatings
- Heat transfer media with improved stability and wider operating temperatures;
- Novel materials for thermal energy storage systems
- Materials for solar-thermochemical processes to produce H2, CO, or synthetic fuels
- High-temperature construction and isolation materials for solar receivers and solar reactors

Guest Editor

Prof. Dr. Martin Schmücker

Institute of Mechanical Engineering, HRW University of Applied Sciences, Duisburger Str. 100, 45479 Mülheim an der Ruhr, Germany

Deadline for manuscript submissions

closed (20 May 2023)

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

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Editor-in-Chief

Prof. Dr. Giancarlo Cravotto
Department of Drug Science and Technology, University of Turin, Via P. Giuria 9, 10125 Turin, Italy

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