Special Issue

Advances in Latent Thermal Energy Storage: Materials, Modeling, and System Integration

Message from the Guest Editors

Latent thermal energy storage (LTES) systems, which harness the phase-change behavior of specialized materials to absorb and release heat, are poised to transform the flexibility and efficiency of renewable energy installations, building climate control, and industrial waste-heat recovery. At the heart of these systems lie phase-change materials (PCMs) and their engineered composites. The need to overcome the inherently low thermal conductivity of many PCMs has inspired a wealth of innovative solutions. Simultaneously, advanced modeling and simulation techniques, encompassing multiphysics computational fluid dynamics, phase-change kinetics, and numerical optimization, are enabling researchers to predict and refine LTES behavior under realistic operating conditions. This Special Issue invites articles, reviews, communications, and perspectives that collectively advance materials innovation, system optimization, and application-driven insights in latent thermal energy storage.

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Message from the Editor-in-Chief

Thermo (ISSN: 2673-7264) is an international, peer-reviewed, and open access journal that publishes original research papers, reviews, and Special Issues dealing with experimental, theoretical, and applied thermal sciences. Both theoretical (simulation) and/or experimental research papers within our journal's scope are of particular interest, including satellite-related topics considering thermophysics, solubility phenomena, chemical thermodynamics, and chemical engineering. We encourage scientists to publish their results in as much detail as possible, and there is no restriction on the maximum length of papers. We greatly appreciate suggestions for enhancing the journal.

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