Special Issue

Design, Simulation and Optimization of Bio-Inspired Thermal Systems

Message from the Guest Editors

The optimization of thermal systems plays a pivotal role in advancing energy efficiency and sustainability across industrial, transportation, biological, and architectural domains. As energy systems become increasingly complex and performance-driven, there is a growing need for innovative solutions that meet thermal requirements while remaining feasible within design, material, and computational constraints. This Special Issue welcomes high-quality original contributions on bio-inspired thermal systems, with a focus on the following:

- Design methodologies for structural scaling, including lattices such as honeycombs, metal foams, and triply periodic minimal surfaces;
- Advanced modeling and simulation techniques for shape optimization (e.g., topology optimization);
- Strategies to enhance the thermal performance of bio-inspired systems;
- Surrogate modeling and regression approaches to replicate natural laws;
- Application-driven case studies demonstrating practical implementations.

Submissions may include experimental, numerical, or theoretical studies. Contributions that explore and address fundamental mechanisms while offering insights into real-world applications are particularly encouraged.

Guest Editors

Dr. Andrea Fragnito

Dr. Marcello Iasiello

Dr. Gerardo Maria Mauro

Deadline for manuscript submissions

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

mdpi.com/journal/thermo

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About the Journal

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.

Editor-in-Chief

Prof. Dr. Johan Jacquemin
Materials Science, Energy, and Nano-Engineering MSN Department, Mohammed VI Polytechnic University, Lot 660, Hay Moulay Rachid, Ben Guerir 43150, Morocco

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JCR - Q2 (Thermodynamics) Rapid Publication: manuscripts are peer-reviewed and a first decision is provided to authors approximately 23 days after submission; acceptance to publication is undertaken in 4.6 days (median values for papers published in this journal in the first half of 2025).

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