

## Special Issue

# Heat Transfer Enhancement Techniques in Microscale Flows

### Message from the Guest Editor

The design of efficient cooling–heating devices is a crucial task in several applications, such as microelectronics, biotechnologies, automotive, and aerospace engineering. For example, the rapid growth of electronic technologies, together with the rapid decrease in component size, has led to a strong need for thermal packaging and management. Unfortunately, the use of strong power density is today coupled to a lack of efficient heat dissipation methods, leading to a truly technological bottleneck. Therefore, the understanding of the transport phenomena involved in micro heat transfer and their enhancement is definitely needed to allow further miniaturization of technological steps. The goal of this Special Issue is to collect contributions focused on recent techniques for heat transfer enhancement in microscale flows. In addition to original research papers, historical review papers are also particularly welcome.

- Microchannel heat sink;
- Microchannel heat exchanger;
- Roughness, riblets, fins;
- Surface texturing;
- Pool and flow boiling;
- Nanofluids;
- Manufacturing strategies;
- Novel sensors

---

### Guest Editor

Prof. Dr. Maria Rosaria Vetrano

Heat & Mass Transfer group, Department of Mechanical Engineering,  
KU Leuven, Celestijnenlaan 300A, B-3001 Heverlee, Belgium

---

### Deadline for manuscript submissions

closed (30 November 2021)



## Energies

---

an Open Access Journal  
by MDPI

---

Impact Factor 3.2  
CiteScore 7.3



[mdpi.com/si/64783](https://mdpi.com/si/64783)

*Energies*  
Editorial Office  
MDPI, Grosspeteranlage 5  
4052 Basel, Switzerland  
Tel: +41 61 683 77 34  
[energies@mdpi.com](mailto:energies@mdpi.com)

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





# Energies

---

an Open Access Journal  
by MDPI

---

Impact Factor 3.2  
CiteScore 7.3



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



## About the Journal

### Message from the Editor-in-Chief

*Energies* is an international, open access journal in energy engineering and research. The journal publishes original papers, review articles, technical notes, and letters. Authors are encouraged to submit manuscripts which bridge the gaps between research, development and implementation. The journal provides a forum for information on research, innovation, and demonstration in the areas of energy conversion and conservation, the optimal use of energy resources, optimization of energy processes, mitigation of environmental pollutants, and sustainable energy systems.

---

### Editor-in-Chief

Prof. Dr. Enrico Sciubba

Department of Mechanical and Industrial Engineering, University  
Niccolò Cusano, 00166 Roma, 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, RePEc, Inspec, CAPlus / SciFinder, and other databases.

#### Journal Rank:

CiteScore - Q1 (Control and Optimization)