

Special Issue

Droplet Microfluidic-Based Systems: Fundamentals, Applications, and Future Directions

Message from the Guest Editors

Droplet microfluidics has emerged as a powerful platform for a wide range of biochemical and industrial applications. The small spatial scales and high surface-to-volume ratios inherent to droplet-based systems offer unique advantages, including precise control of reagent volumes, well-defined reaction conditions, rapid mixing, enhanced interfacial effects, and high-throughput capabilities. These systems can facilitate biochemical reactions that are challenging to achieve in bulk phases. Over the past two decades, droplet microfluidics-based systems have been extensively investigated and applied in fields such as high-throughput screening, 3D printing, and wearable electronics. As we enter the middle of the fourth decade in the history of microfluidics, new knowledge, concepts, and technologies continue to emerge. For example, the development of artificial intelligence is paving the way for more advanced and sensitive droplet microfluidics-based systems.

This Special Issue will highlight the latest fundamental studies and innovative applications in droplet microfluidics. We welcome submissions in the form of research papers, short communications, and review articles.

Guest Editors

Dr. Wei Guo

School of Biomedical Engineering, Shenzhen University, Shenzhen 518060, China

Dr. Yage Zhang

School of Biomedical Engineering, Shenzhen University, Shenzhen 518060, China

Deadline for manuscript submissions

31 July 2026



Micromachines

an Open Access Journal
by MDPI

Impact Factor 3.0
CiteScore 7.1
Indexed in PubMed



mdpi.com/si/229048

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

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





Micromachines

an Open Access Journal
by MDPI

Impact Factor 3.0
CiteScore 7.1
Indexed in PubMed



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



About the Journal

Message from the Editor-in-Chief

You are invited to contribute research articles or comprehensive reviews for consideration and publication in *Micromachines* (ISSN 2072-666X). *Micromachines* is published in the open access format. Research articles, reviews and other contents are released on the internet immediately after acceptance. The scientific community and the general public have unlimited free access to the content as soon as it is published. As an open access journal, *Micromachines* is supported by the authors or their institutes by payment of article processing charges (APC) for accepted papers. We are pleased to welcome you as our authors.

Editor-in-Chief

Prof. Dr. Nam-Trung Nguyen

Queensland Quantum and Advanced Technologies Research Institute,
Griffith University, West Creek Road, Nathan, QLD 4111, Australia

Author Benefits

High Visibility:

indexed within Scopus, SCIE (Web of Science), PubMed, PMC, Ei Compendex, dblp, and other databases.

Journal Rank:

JCR - Q2 (Instruments and Instrumentation) / CiteScore - Q1 (Mechanical Engineering)

Rapid Publication:

manuscripts are peer-reviewed and a first decision is provided to authors approximately 16.8 days after submission; acceptance to publication is undertaken in 1.9 days (median values for papers published in this journal in the second half of 2025).