

Special Issue

Multiphase Flow and Artificial Intelligence

Message from the Guest Editors

The intersection of multiphase flow and artificial intelligence (AI) offers groundbreaking potential across various scientific and engineering fields, including fluid mechanics, chemical engineering, petroleum engineering, and environmental science. Traditional multiphase flow models often require extensive computational resources and complex empirical data, posing challenges in achieving high accuracy and real-time processing. With recent advances in AI, especially in machine learning and data-driven methods, there is a unique opportunity to develop more efficient, robust, and accurate approaches for modeling, predicting, and optimizing multiphase flow behavior. Submissions should demonstrate innovative use of AI methodologies, including but not limited to deep learning, reinforcement learning, data mining, and surrogate modeling. We especially welcome contributions that address real-world applications or provide insights into the physical mechanisms governing multiphase flows through AI-driven approaches.

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Deadline for manuscript submissions

closed (31 July 2025)



Mathematics

an Open Access Journal
by MDPI

Impact Factor 2.2
CiteScore 4.6



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Message from the Editor-in-Chief

The journal *Mathematics* publishes high-quality, refereed papers that treat both pure and applied mathematics. The journal highlights articles devoted to the mathematical treatment of questions arising in physics, chemistry, biology, statistics, finance, computer science, engineering and sociology, particularly those that stress analytical/algebraic aspects and novel problems and their solutions. One of the missions of the journal is to serve mathematicians and scientists through the prompt publication of significant advances in any branch of science and technology, and to provide a forum for the discussion of new scientific developments.

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