Special Issue

Computational Fluid Dynamics in Mechanical Engineering

Message from the Guest Editors

This Special Issue aims to highlight state-of-the-art research in computational fluid dynamics and its applications within mechanical engineering disciplines. The scope of this Special Issue covers both fundamental theoretical developments and applied research, including aerospace systems, automotive engineering, energy conversion, HVAC systems, manufacturing processes, and biomedical applications. In this Special Issue, original research articles and reviews are welcome. Research areas may include (but are not limited to) the following:

- Advanced turbulence modeling and simulation techniques.
- Multiphase and multicomponent flow simulations.
- Fluid–structure interaction in engineering applications.
- High-performance computing and GPU acceleration for CFD.
- Machine learning and AI integration with computational fluid dynamics.
- Thermal management and heat transfer optimization using CFD.
- Novel numerical methods and algorithm development for fluid simulation.
- Validation and verification methodologies for CFD models.
- Industrial applications of CFD in energy systems, aerospace, and manufacturing.
- Environmental and sustainable engineering applications of CFD.

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Message from the Editor-in-Chief

As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal Applied Sciences has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

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