

## Special Issue

# Data-Driven Modeling and Applications for Flow, Heat Transfer, and Combustion

### Message from the Guest Editors

Data-driven methodologies have become a crucial tool for understanding flow dynamics, heat transfer phenomena, and reacting flows across various domains of applications. This Special Issue explores computational approaches and experimental diagnoses combined with machine learning methods for single- and multi-phase flows, heat and mass transfer processes, and reacting flows, with applications pertinent to combustion engines, turbomachinery, and power generation systems. We invite original research articles, review articles, and technical notes that contribute to the advancement of knowledge in this interdisciplinary field. Topics include, but are not limited to, the following:

- Data-driven turbulence modeling and closures;
- Data-driven models for turbulence/chemistry interaction;
- Data-driven models for mass and heat transfer processes;
- Machine learning for combustion chemistry acceleration;
- Machine learning for fluid dynamics data analysis;
- Machine learning for flow control and detection.

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### Guest Editors

Dr. Songbai Yao

Prof. Dr. Ping Wang

Dr. Bosen Wang

Dr. Weijia Qian

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### Deadline for manuscript submissions

31 December 2025



## Processes

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

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### Editor-in-Chief

Prof. Dr. Giancarlo Cravotto

Department of Drug Science and Technology, University of Turin, Via P. Giuria 9, 10125 Turin, Italy

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