

Special Issue

Advances in Hydrodynamics for Pumping Systems: Modeling, Optimization, and Applications

Message from the Guest Editors

Pumping systems are integral to industrial processes, water supply, and energy systems, where hydrodynamic performance directly impacts efficiency, reliability, and sustainability. This Special Issue explores cutting-edge advancements in the hydrodynamics of pumping systems, focusing on theoretical, numerical, and experimental approaches to optimize their design and operation. Topics of interest include (but are not limited to) flow instabilities, cavitation phenomena, turbulence modeling, energy-efficient pump designs, and the application of machine learning for predictive maintenance. Contributions addressing multiphase flows, renewable energy integration (e.g., pumped hydro storage), and smart pumping technologies are also encouraged.

We invite original research articles, case studies, and reviews that address emerging trends, sustainability, and cost-effective strategies in this critical field. [...] For further reading, please follow the link to the Special Issue Website at:
https://www.mdpi.com/journal/water/special_issues/PI9S309CX5

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Message from the Editor-in-Chief

In the context of global changes, the sustainable management of water cycles, going from global and regional water cycles to urban, industrial and agricultural water cycles, plays a very important role on the water resources and on their relationships with food, energy, biodiversity, ecosystem functioning and human health. *Water* invites authors to provide innovative original full articles, critical reviews and timely short communications and to propose special issues devoted to new technological and scientific domains and to interdisciplinary approaches of the water cycles. We ensure a critical review process and a quick turnaround between submission and final decision.

Editor-in-Chief

Dr. Jean-Luc PROBST

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