



Fluids

an Open Access Journal by MDPI

CiteScore: 4.1

Impact Factor: 2.1

Special Issue Reprint

Cavitation and Bubble Dynamics

Edited by: Rui Han

This Reprint collates 10 peer-reviewed articles from the Special Issue on “Cavitation and Bubble Dynamics”, emphasizing marine engineering applications and interdisciplinary innovations. It presents cutting-edge research connecting fundamental fluid mechanics with practical engineering challenges, providing valuable insights for academics and industry professionals. The original studies are grouped into two core themes.

The first covers marine engineering applications, including underwater explosion dynamics and cavitation mechanisms. Research on underwater explosion dynamics involves numerical and experimental analyses of bubble collapse, shock wave propagation and marine structural response under explosive loads to improve offshore safety and resilience. Studies on cavitation mechanisms examine propellers, pumps and underwater vehicles, proposing methods to reduce flow-induced vibration and material erosion. The second focuses on ultrasonic cavitation innovations, particularly cleaning technologies. Research explores cavitation-based cleaning for marine equipment, optimizing ultrasonic parameters to improve decontamination efficiency while reducing surface damage.

Combining theoretical models, advanced computational methods and experimental data, the Reprint presents collaborative progress in cavitation and bubble dynamics, supporting more reliable and sustainable marine engineering systems. It serves as a key reference for researchers and engineers in naval architecture, ocean engineering and fluid dynamics, summarizing recent trends and breakthroughs in cavitation and underwater explosion dynamics.



<https://www.mdpi.com/books/reprint/13077>