Special Issue

Dynamics and Control of Marine Mechatronics

Message from the Guest Editor

Marine mechatronics has emerged as a cornerstone of modern ocean engineering. Integrating mechanics, electronics, and advanced control theory, this field addresses the unique challenges posed by highly nonlinear dynamics, multi-physical interactions, and unpredictable marine environments. Key research priorities include optimizing energy efficiency, ensuring operational reliability under extreme conditions, and enabling autonomous decision making for complex tasks such as deep-sea exploration or offshore infrastructure maintenance. This Special Issue covers topics including, but not limited to, the following:

- Advanced control architectures for marine robotic systems;
- Modeling of coupled mechanical–electrical–hydrodynamic dynamics;
- Real-time sensor fusion and state estimation in noisy or partially observable environments;
- Energy-efficient actuation and power management for long-duration missions;
- Resilient system design addressing failures, extreme loads, or environmental uncertainties;
- AI-driven solutions for autonomous navigation, path planning, and swarm coordination.

Guest Editor

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About the Journal

Message from the Editor-in-Chief

The *Journal of Marine Science and Engineering* (*JMSE*; ISSN 2077-1312) is an international peer-reviewed open access journal which provides an advanced forum for studies related to marine science and engineering. The journal aims to provide scholarly research on a range of topics, including ocean engineering, chemical oceanography, physical oceanography, marine biology and marine geosciences. We invite you to publish in our journal sharing your important research findings with the global ocean community.

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manuscripts are peer-reviewed and a first decision is provided to authors approximately 15.6 days after submission; acceptance to publication is undertaken in 1.9 days (median values for papers published in this journal in the first half of 2025).