

Special Issue

Innovations in Rotorcraft Flight Dynamics and Control

Message from the Guest Editors

Recent advances in rotary-wing flight dynamics and control, driven by new vehicle designs and computational methods, are enhancing efficiency, safety, and operational capabilities. Key innovations include the integration of Artificial Intelligence (AI) and advanced modeling techniques. Technological progress in flight control systems—such as fly-by-wire, fly-by-light, intelligent flight control, and adaptive control laws like higher harmonic and advanced feedback control—has improved responsiveness and reliability. Increased computational power enables detailed simulations using advanced wake, aerodynamic modeling, and multi-disciplinary analysis, facilitating novel rotorcraft designs for Urban Air Mobility (UAM) and eVTOLs. Physics-based simulations and system identification methods support advanced testing of complex configurations. The future focuses on integrating AI and machine learning for autonomy and safety, developing hybrid and electric propulsion for UAM, and refining active rotor and flow control technologies to boost performance. Manuscripts covering all aspects of rotorcraft flight dynamics and control are invited.

Guest Editors

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