Special Issue

Applied Aeroelasticity and Fluid-Structure Interaction

Message from the Guest Editors

Towards green aviation, new aircraft configurations are being developed with reduced structural weight and higher energy efficiency. As a result, modern aircraft possess a high level of flexibility to satisfy maneuverability requirements. Aeroelastic instabilities and responses can severely affect the flight performance and limit the flight envelope of these new aircraft configurations. Similar aeroelastic phenomena may also arise in modern turbomachines and wind turbines. Thus, there is a strong need in the aerospace industry and fluid engineering to predict and simulate aeroelastic, and in general, fluid-structure interactions. Like other areas in science and technology, experimental aeroelastic methods are consistently advancing. While improved low-order linear modelling methods are still commonly used for industrial design, high-order methods are becoming more attractive than in the past. This is because the methods based on the Euler and Navier-Stokes equations can model nonlinear transonic and viscous (Navier-Stokes) effects more accurately.

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Deadline for manuscript submissions

closed (31 December 2023)

Aerospace

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Impact Factor 2.2
CiteScore 4.0

mdpi.com/si/146491

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