Special Issue

The Impact of Smart Structures in Contemporary and Future Aerospace Scenarios

Message from the Guest Editors

This Special Issue proposes an in-depth exploration of the application of smart structures in both current and future aerospace systems. Smart structures represent a transformative approach to aerospace engineering, containing novel components capable of sensing, actuation, and control. These smart structures enhance the efficiency, safety, and performance of aerospace systems by autonomously adapting to changing environmental conditions and operational demands. Contributions to this Special Issue will cover a range of topics, including, but not limited to, the development of novel smart materials and sensors, innovative actuation mechanisms, cutting-edge algorithms for real-time processing and control, and case studies on the integration and performance evaluation of these systems in aerospace applications. The research articles, reviews, and case studies featured in this Special Issue will highlight the pivotal role of smart structures in advancing aerospace engineering, paving the way for more resilient and adaptable aircraft and spacecraft designs.

Guest Editors

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About the Journal

Message from the Editorial Board

We are just entering the Next Wave of Technology (NWT) where actuators will play the same role as the computer chip did for computers/social media approximately four decades ago. Just in the U.S., production of $1 trillion year of electromechanical systems (vehicles, orthotics, manufacturing cells, freight trains, aircraft, etc.) will be impacted by the NWT, all driven by actuators. Five key trends can be found for the future perspectives: “Performance to Reliability”, “Hard to Soft”, “Macro to Nano”, “Homo to Hetero” and “Single to Multi functional”. We invite papers that primarily impact these economic sectors; those illustrating basic scientific principles are also welcome.

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