Special Issue

Aerospace Systems: Nonlinear Dynamics, Intelligent Optimization and Control

Message from the Guest Editors

As the number of on-orbit satellites and space debris continues to increase, particularly with the deployment of large-scale satellite constellations, space is becoming increasingly congested. If this growth remains uncontrolled, it will pose serious threats to future space activities and the stability of aerospace systems. Effective space traffic management (STM) is essential not only for ensuring a safe and stable space environment but also for maintaining the integrity and functionality of aerospace systems. STM encompasses several critical areas, including space situational awareness, the coordinated operation of spacecraft and other objects, the deployment and management of large satellite constellations, collision avoidance, and debris evolution and removal. This special issue is dedicated to advancing the field of STM through innovative approaches in design, modeling, and optimization, with a particular focus on nonlinear dynamics, intelligent optimization, and control. It aims to bridge traditional methods with cutting-edge artificial intelligence techniques, providing a platform for novel studies and technologies that can be applied to enhance STM.

Guest Editors

Prof. Dr. Ming Xu
School of Astronautics, Beihang University, Beijing 100191, China

Dr. Xue Bai
School of Astronautics, Beihang University, Beijing 100191, China

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Applied Sciences
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
applsci@mdpi.com

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As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal Applied Sciences has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

Editor-in-Chief

Prof. Dr. Giulio Nicola Cerullo
Dipartimento di Fisica, Politecnico di Milano, Piazza L. da Vinci 32, 20133 Milano, Italy

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