Special Issue

New Concepts in Spacecraft Guidance Navigation and Control

Message from the Guest Editors

The space sector is witnessing unprecedented growth, driven by technological advancements and increasing global interest in both commercial and scientific exploration. As this momentum builds, there is a growing need for novel concepts in spacecraft guidance, navigation, and control (GNC) to address the evolving complexity of space exploration. With the rising trend toward miniaturized platforms, such as CubeSats and small satellites, the challenge of optimizing GNC systems for compact, resource-limited environments has become more pressing than ever. Artificial intelligence and distributed space systems are becoming integral components of these advancements, enabling smarter, more adaptive spacecraft capable of independent decision-making. The need to improve mission safety, enhance precision in deep space navigation, and incorporate advanced sensors is fueling the development of next-generation GNC systems. This Special Issue of MDPI Aerospace seeks to present the latest breakthroughs and novel concepts in spacecraft GNC, focusing on innovations that will equip next-generation spacecraft to explore and research the solar system with greater autonomy and reliability.

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