Special Issue

Advanced Design for Lightweight Space Materials and Structural Systems

Message from the Guest Editor

"Better, faster, and cheaper"—the new space paradigm encompasses the mass production of structures for space missions at low cost. Within this trend, lightweight structures and advanced materials have been identified as critical needs since reducing structural mass directly impacts cost and mass capability, facilitating additional logistics competencies for all missions. Therefore, innovative materials and structures for space are actively being developed, along with optimization techniques and high-reliability structural design methodologies aimed at weight reduction. These advancements will enhance space mission performance and serve as key cornerstones for future space exploration. Aligned with these efforts, this Special Issue covers a spectrum of relevant technologies, including structural design methodologies, optimization techniques, and advanced materials to achieve lightweight spaceborne structures. The detailed scope of the Special Issue encompasses a range of innovative lightweight structures, advancements in materials for metals, composites, ceramics, and fabrics, large deployable structures, as well as multi-functional/purpose materials and structures.

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