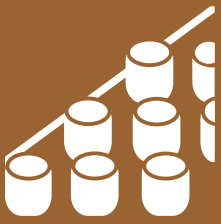

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Special Issue Reprint

Mechanical Performance of Advanced Composite Materials and Structures

Edited by: Yin Fan

The mechanical performance of advanced composite materials and structures plays a critical role in the design and optimization of components across various engineering domains, including aerospace, civil, mechanical, and naval architecture. As experimental technologies and analytical methodologies continue to evolve, the understanding of these materials has advanced significantly, with studies spanning from the microscale to the macroscale. The application of advanced composites has led to substantial progress in various industries, enhancing the performance and durability of structural systems. At the same time, the growing demands of modern industries are driving the development of next-generation composite materials, such as nanocomposites and metamaterials, which promise superior mechanical properties. These innovations are not only pushing the boundaries of material performance but also addressing new challenges in structural engineering, where resilience, lightweight design, and efficiency are paramount. This Special Issue focuses on the latest research into the mechanical performance of advanced composite materials and structures. Key areas of exploration include experimental investigations, mechanical and numerical analyses, and multiscale modeling techniques. This issue aims to capture cutting-edge developments that bridge the gap between theoretical research and practical applications, providing valuable insights for advancing the design, manufacturing, and utilization of high-performance composite materials and structures.

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