



polymers



Special Issue Reprint

Advances in Functional Polymers and Composites

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Polymers and composites offer significant advantages such as cost-effectiveness, lightweight properties, design flexibility, and manufacturing adaptability. They are widely applied across aerospace, transportation, sustainable energy, construction, and other sectors. The production of polymer and composite components involves multiple steps, including structural design, preform shaping, curing and forming, machining and assembly, and inspection and analysis – each exerting a direct and significant influence on the final performance and reliability of the structure. With the growing use of these materials in high-end applications, composite components are increasingly developed at for large scale and integrated structures, with greater complexity and multifunctionality. These trends present new challenges in the design and manufacturing of advanced functional polymers and composites.

This Reprint aims to showcase recent advances and cutting-edge research in this field, covering topics such as structural design, mechanics, molding processes, machining and assembly techniques, defect detection, and functional evaluation. Both original research articles and reviews are included, and through this collection, editors seek to promote the development of scientific theories and methodologies, and to support the broader application of advanced functional polymers and composites in high-performance equipment and interdisciplinary fields.



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