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Special Issue Reprint

Advances in Nanocomposites

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Nanocomposites have emerged as advanced functional materials with tunable structural, physicochemical, mechanical, thermal, electrical, optical, and biological properties. Their versatility and multifunctionality have enabled important advances in materials science, nanotechnology, food technology, environmental protection, energy, healthcare, and engineering. This Reprint, *Advances in Nanocomposites: Preparation, Characterization, Properties and Applications*, brings together 13 research contributions highlighting recent developments in the design, preparation, functionalization, characterization, and application of innovative nanocomposite systems. The collection covers polymer nanocomposites, bio-based and sustainable nanocomposites, nanofibers, hybrid and multifunctional materials, surface-engineered systems, and emerging nanoscale architectures. Particular attention is given to structure–property relationships, interfacial interactions, processing strategies, advanced characterization techniques, and performance optimization. The Reprint also highlights diverse applications in sustainable materials, food packaging and preservation, environmental remediation, sensing, energy storage and conversion, biomedical technologies, coatings, and other advanced functional systems. By bringing together interdisciplinary research spanning chemistry, materials science, nanotechnology, biotechnology, and engineering, this Reprint provides a comprehensive overview of recent advances and demonstrates the broad potential of nanocomposite materials for emerging technological applications.



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