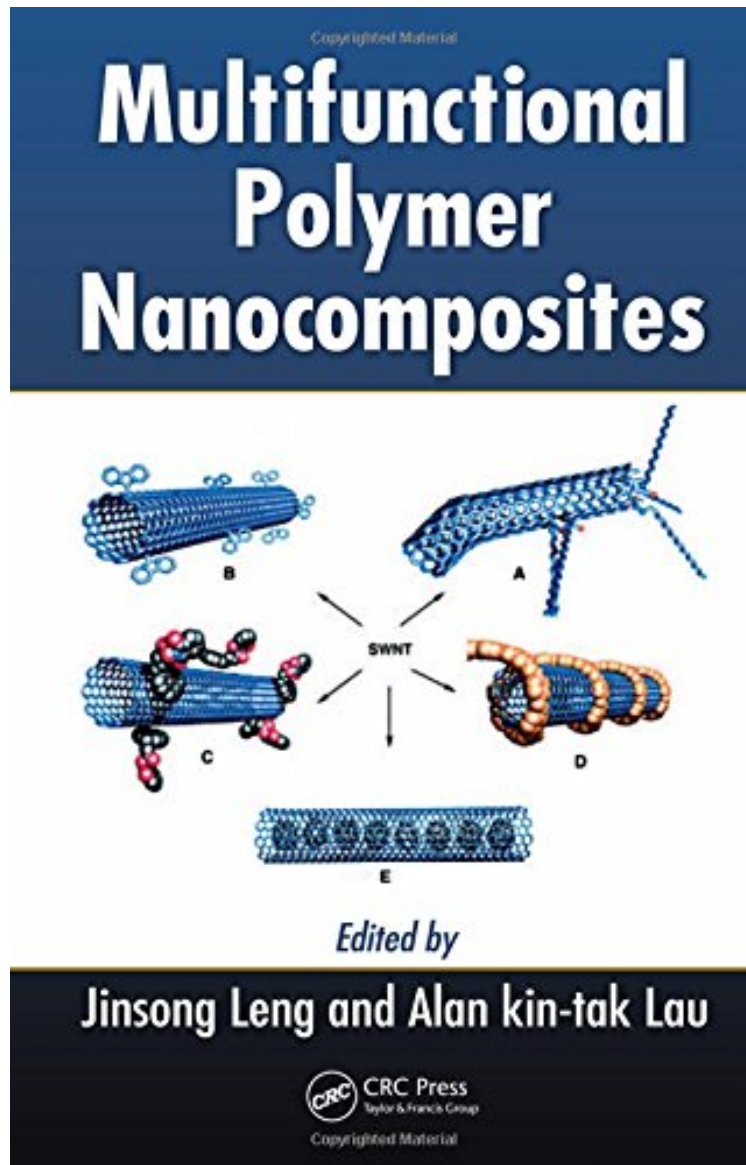


Multifunctional Polymer Nanocomposites

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The novel properties of multifunctional polymer nanocomposites make them useful for a broad range of applications

in fields as diverse as space exploration, bioengineering, car manufacturing, and organic solar cell development, just to name a few. Presenting an overview of polymer nanocomposites, how they compare with traditional composites, and their increasing commercial importance, *Multifunctional Polymer Nanocomposites* conveys the significance and various uses of this new technology for a wide audience with different needs and levels of understanding. Exploring definitions, architectures, applications, and fundamental principles of various functions of multifunctional polymeric smart materials from bulk to nano, this book covers the use of multifunctional polymer nanocomposites in: Carbon nanotubes Electroactive and shape memory polymers Magnetic polymers Biomedical and bioinformation applications Fire-resistance treatments Coating technologies for aeronautical applications Ocean engineering A practical analysis of functional polymers, nanoscience, and technology, this book integrates coverage of fundamentals, research and development, and the resulting diversity of uses for multifunctional polymers and their nanocomposites. Quite possibly the first reference of its kind to explore the progress of polymer nanocomposites in terms of their multifunctionality, it covers both theory and experimental results regarding the relationships between the effective properties of polymer composites and those of polymer matrices and reinforcements. This book is a powerful informational resource that illustrates the importance of polymer nanomaterials, examining their applications in various sectors to promote new, novel research and development in those areas. It will be a welcome addition to the libraries of not only engineering researchers, but senior and graduate students in relevant fields.

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