1. Record Nr. UNINA9910553073203321

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Titolo	Carbon Nanothreads Materials / / by Kim Meow Liew, Wei-Ming Ji, Lu-Wen Zhang
Pubbl/distr/stampa	Singapore : , : Springer Nature Singapore : , : Imprint : Springer, , 2022
ISBN	981-19-0912-1
Edizione	[1st ed. 2022.]
Descrizione fisica	1 online resource (315 pages)
Collana	Materials Horizons: From Nature to Nanomaterials, , 2524-5392
Disciplina	620.115
Soggetti	Nanotechnology Composite materials Polymerization Magnetic materials Composites Polymer Synthesis Magnetic Materials
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Introduction -- Experimental aspect -- Topological structure -- Mechanical properties of carbon nanothreads -- Electronic properties of carbon nanothreads -- Thermal properties of carbon nanothreads -- Carbon nanothreads reinforced polymer composites -- Arrangements of carbon nanothreads -- Arrangements of carbon nanothreads.
Sommario/riassunto	This book describes carbon nanothreads with complete and comprehensive knowledge covering theories, numerical methods, and properties comparisons with other carbon-based nanomaterials. For one thing, the main theoretical aspects in this book include: First-Principle Calculation, Density Functional Theory, Classical Molecular Dynamics Simulation, Non-equilibrium Molecular Dynamics Simulation, and Coarse Grained Simulation. For another thing, the main research contents include: Fundamental Mechanical Properties; Fracture Characteristics; Electronic and Magnetic Properties; Thermal Properties; Reinforcement in Polymer Composites; and other promising applications in engineering. The target of this book is to provide to many researchers the available theoretical and numerical methods, and

useful computational results of carbon nanothreads for reference. This book can be used as a comprehensive source for scientists, academics, researchers, and engineers in various areasof engineering, physical sciences, and computational modeling. In order to achieve this target, the book introduces the microstructure information of carbon nanothreads and the modeling details at full length. The tunable mechanisms of physical properties of carbon nanothreads are discussed in detail, which enable integration of these nanoscale components into high-order structures for “bottom-up design” purpose. The revealed reinforced mechanisms of carbon nanothreads in polymer composites can provide theoretical guidance for engineering design of advanced polymer composites.