Record Nr. UNINA9910139472003321 Carbon nanotubes and related structures [[electronic resource]]: **Titolo** synthesis, characterization, functionalization, and applications // edited by Dirk M. Guldi and Nazario Martin Weinheim,: Wiley-VCH Verlag GmbH & Co., 2010 Pubbl/distr/stampa **ISBN** 3-527-62993-9 1-282-49159-8 9786612491597 3-527-62994-7 Descrizione fisica 1 online resource (563 p.) Altri autori (Persone) GuldiD. M (Dirk M.) MartinNazario Disciplina 546.681 Soggetti Carbon Nanostructured materials Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Description based upon print version of record. Note generali Includes bibliographical references and index. Nota di bibliografia Nota di contenuto Carbon Nanotubes and Related Structures: Synthesis, Characterization, Functionalization, and Applications; Contents; Preface; List of Contributors: 1 Carbon Nanotubes and Related Structures: Production and Formation; 2 Theory of Electronic and Optical Properties of DNA-SWNT Hybrids: 3 Electrochemistry; 4 Photophysics; 5 Noncovalent Functionalization of Carbon Nanotubes: 6 Covalent Functionalization of Carbon Nanotubes; 7 Carbon-Based Nanomaterial Applications in Biomedicine: 8 Ground and Excited State Charge Transfer and its **Implications** 9 Photovoltaic Devices Based on Carbon Nanotubes and Related Structures10 Layer-by-Layer Assembly of Multifunctional Carbon Nanotube Thin Films: 11 Carbon Nanotubes for Catalytic Applications: 12 Carbon Nanotubes as Containers; 13 Carbon Nanohorn; 14 Self-Organization of Nanographenes; 15 Endohedrals; 16 Carbon

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Sommario/riassunto

Nanostructures: Calculations of Their Energetics, Thermodynamics, and

Written by the most prominent experts and pioneers in the field, this

ready reference combines fundamental research, recent breakthroughs and real-life applications in one well-organized treatise. As such, both newcomers and established researchers will find here a wide range of current methods for producing and characterizing carbon nanotubes using imaging as well as spectroscopic techniques. One major part of this thorough overview is devoted to the controlled chemical functionalization of carbon nanotubes, covering intriguing applications in photovoltaics, organic electronics and materi