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Collana	Advance materials series
Altri autori (Persone)	TiwariAshutosh <1978-> ShuklaS. K
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Soggetti	Carbon Carbon composites
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Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
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Nota di contenuto	Cover; Title Page; Copyright Page; Contents; Preface; Part 1 Graphene, Carbon Nanotubes and Fullerenes; 1 Synthesis, Characterization and Functionalization of Carbon Nanotubes and Graphene: A Glimpse of Their Application; 1.1 Introduction; 1.2 Synthesis and Characterization of Carbon Nanotubes; 1.3 Synthesis and Characterization of Graphene; 1.3.1 Micromechanical Cleavage of Highly Oriented Pyrolytic Graphite; 1.3.2 Chemical Vapor Deposition Growth of Graphene either as Stand Alone or on Substrate; 1.3.3 Chemical and Thermal Exfoliation of Graphite Oxide; 1.3.4 Arc-Discharge Method 1.4 Methods Used in Our Lab: CVD, Thermal Exfoliation, Arc Discharge and Chemical Reduction 1.4.1 Raman Spectra; 1.4.2 Electrochemical Exfoliation; 1.5 Functionalization of Carbon Nanotubes and Graphene; 1.5.1 Covalent Functionalization; 1.5.2 Non-Covalent Functionalization; 1.5.3 FTIR Analysis of CNTs and FCNTs; 1.6 Applications; 1.7 Conclusion; Acknowledgements; References; 2 Surface Modification of Graphene; 2.1 Introduction; 2.2 Surface-Modified Graphene from GO; 2.2.1 Covalent Surface Modification; 2.2.2 Non-covalent Surface Modification; 2.3 Application of Surface-Modified Graphene

2.3.1 Polymer Composites; 2.3.2 Sensors; 2.3.3 Drug Delivery System; 2.3.4 Lubricants; 2.3.5 Nanofluids; 2.3.6 Supercapacitor; 2.4 Conclusions and Future Directions of Research; Acknowledgement; References; 3 Graphene and Carbon Nanotube-based Electrochemical Biosensors for Environmental Monitoring; 3.1 Introduction; 3.1.1 Carbon Nanotubes (CNTs); 3.1.2 Graphene (GR); 3.1.3 Electrochemical Sensors; 3.1.4 Sensors and Biosensors Based on CNT and GR; 3.2 Applications of Electrochemical Biosensors; 3.2.1 Heavy Metals; 3.2.2 Phenols; 3.2.3 Pesticides; 3.3 Conclusions and Future Perspectives References; 4 Catalytic Application of Carbon-based Nanostructured Materials on Hydrogen Sorption Behavior of Light Metal Hydrides; 4.1 Introduction; 4.2 Different Carbon Allotropes; 4.3 Carbon Nanomaterials as Catalyst for Different Storage Materials; 4.4 Key Results with MgH₂, NaAlH₄ and Li-Mg-N-H Systems; 4.4.1 Magnesium Hydride; 4.4.2 Sodium Alanate; 4.4.3 Amides/Imides; 4.5 Summary; Acknowledgements; References; 5 Carbon Nanotubes and Their Applications; 5.1 Introduction; 5.2 Carbon Nanotubes Structure; 5.3 Carbon Nanotube Physical Properties; 5.4 Carbon Nanotube Synthesis and Processing; 5.5 Carbon Nanotube Surface Modification; 5.6 Applications of Carbon Nanotubes; 5.6.1 Composite Materials; 5.6.2 Nano Coatings - Antimicrobials and Microelectronics; 5.6.3 Biosensors; 5.6.4 Energy Storages; 5.7 Conclusion; References; 6 Bioimpact of Carbon Nanomaterials; 6.1 Biologically Active Fullerene Derivatives; 6.1.1 Introduction; 6.1.2 Functionalization/Derivatization of Fullerene C₆₀; 6.1.3 Biological Activity of Non-Derivatized Fullerene C₆₀; 6.1.4 Biological Activity of Derivatized Fullerene C₆₀; 6.1.5 Chemical Synthesis of Fullerenol C₆₀(OH)_n; 6.1.6 Fullerenol and Biosystems; 6.2 Biologically Active Graphene Materials

Sommario/riassunto

The expansion of carbon materials is multidisciplinary and is related to physics, chemistry, biology, applied sciences and engineering. The research on carbon materials has mostly focused on aspects of fundamental physics as they unique electrical, thermal and mechanical properties applicable for the range of applications. The electrons in graphene and other derived carbon materials behave as dirac fermions due to their interaction with the ions of the lattice. This direction has led to the discovery of new phenomena such as Klein tunneling in carbon based solid state systems and the so-called

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ISBN	3-030-47306-6
Edizione	[1st ed. 2020.]
Descrizione fisica	1 online resource (XVII, 430 p. 40 illus., 31 illus. in color.)
Disciplina	635.65
Soggetti	Plant biotechnology Plant genetics Nutrition Agriculture Plant Biotechnology Plant Genetics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Foreword -- Preface -- Efficient Breeding of Pulse Crops -- Advances in Chickpea Breeding and Genomics for Varietal Development and Traits Improvement in India -- Conventional and Biotechnological Approaches for Trait Targeted Improvement in Lentil -- Updates Pigeonpea Breeding and Genomics for Yield Improvement in India -- "Genomics-Assisted Breeding Green Gram (Vigna radiata (L.) Wilczek) for Accelerating Genetic Gain" -- Breeding For High Yielding and Disease Resistant Urdbean Cultivars -- Lentil Breeding in Genomic Era: Present Status and Future Prospects -- Chickpea Breeding for Abiotic Stress: Breeding Tools and 'Omics' Approaches for Enhancing Genetic Gain -- Recent Advances in Mungbean Breeding -- A Perspective -- Genetic Advancement in Dry Pea (Pisum Sativum L.): Retrospect and Prospect -- Translational Genomics and Breeding in Soybean -- Efficient Improvement in an Orphan Legume, Horsegram, Macrotyloma uniflorum (Lam.) Verdi, using Conventional and Molecular Approaches -- Molecular and Conventional Breeding Strategies for Improving Biotic Stress Resistance in Common Bean -- Index.

Plant improvement has shifted its focus from yield, quality and disease resistance to factors that will enhance commercial export, such as early maturity, shelf life and better processing quality. Conventional plant breeding methods aiming at the improvement of a self-pollinating crop, such as wheat, usually take 10-12 years to develop and release of the new variety. During the past 10 years, significant advances have been made and accelerated methods have been developed for precision breeding and early release of crop varieties. The proposed volume work thus plans to summarize concepts dealing with germplasm enhancement and development of improved varieties based on innovative methodologies that include doubled haploidy, marker assisted selection, marker assisted background selection, genetic mapping, genomic selection, high-throughput genotyping, high-throughput phenotyping, mutation breeding, reverse breeding, transgenic breeding, shuttle breeding, speed breeding, low cost high-throughput field phenotyping, etc. It will be an important reference with special focus on accelerated development of improved crop varieties.
