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Soggetti	Condensed matter Engineering Electronics Microelectronics Biomaterials Chemistry, Physical and theoretical Physics Condensed Matter Physics Engineering, general Electronics and Microelectronics, Instrumentation Physical Chemistry Physics, general
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Nota di contenuto	Aid of scaling laws in the achievement of a well-controlled film deposition process -- A spectroscopic approach to carbon materials for energy storage -- Biocompatibility, cytotoxicity and bioactivity of amorphous carbon films -- Characterisation of the growth mechanism during PECVD of multi-walled carbon nanotubes -- Correlation between local structure and film properties in states in amorphous carbon materials -- Defects in CVD diamond films from their response as nuclear detectors -- Effects of nanoscale clustering in amorphous

carbon -- Elastic and structural properties of carbon materials investigated by Brillouin light scattering -- Electrical resistivity and real structure of magnetron sputtered carbon films -- Formation, atomic structures, and properties of carbon nanocage materials -- Hard amorphous hydrogenated carbon films and alloys -- Ion microscopy on diamond -- Measurements of defect density inside CVD diamond films through nuclear particle penetration -- Laser ablation deposited CNx thin films -- Modelling of the transport properties of diamond radiation sensors -- Nucleation process of CVD diamond on molybdenum substrates -- Optical characterisation of high-quality homoepitaxial diamond -- Pulsed laser deposition of carbon films: tailoring structure and properties -- Raman spectra and structure of sp2 carbon based materials: electron-phonon coupling, vibrational dynamics and Raman activity -- Raman spectroscopy and optical properties of amorphous diamond-like carbon films -- Raman spectroscopy of CVD carbon thin films excited by near-infrared light -- The role of hydrogen in the electronic structure of amorphous carbon: an electron spectroscopy study -- UV-induced photoconduction in diamond -- Vibrational spectroscopy in ion irradiated carbon based thin films.

Sommario/riassunto

Carbon-based materials and their applications constitute a burgeoning topic of scientific research among scientists and engineers attracted from diverse areas such as applied physics, materials science, biology, mechanics, electronics and engineering. Further development of current materials, advances in their applications, and discovery of new forms of carbon are the themes addressed by the frontier research in these fields. This book covers all the fundamental topics concerned with amorphous and crystalline C-based materials, such as diamond, diamond-like carbon, carbon alloys, carbon nanotubes. The goal is, by coherently progressing from growth - and characterisation techniques to technological applications for each class of material, to fashion the first comprehensive state-of-the-art review of this fast evolving field of research in carbon materials.