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Descrizione fisica	1 online resource (X, 1500 p.)
Disciplina	620.14
Soggetti	Ceramics Glass Composite materials Nanoscience Nanostructures Biomedical engineering Polymers Electronics Microelectronics Nanotechnology Ceramics, Glass, Composites, Natural Materials Nanoscale Science and Technology Biomedical Engineering/Biotechnology Polymer Sciences Electronics and Microelectronics, Instrumentation
Lingua di pubblicazione	Inglese
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Nota di contenuto	Introduction-Modern Perspective with P&C-Nano -- Design and Engineering Technology for P&C-Nano -- Characterization Techniques for P&C-Nano -- Polymer films and Bio-hybrid polymer nanofiber -- Nano electronics & photonics -- Polymer nanocomposites matrices -- Composites Based on Shape-Memory Alloys -- Bio-nanoceramics and Bio-nanocomposites -- Biocompatible Nanopolymers -- Block copolymer nanocomposites -- Graphene nanocomposite -- P&C-Nano

	for biomedical applications -- P&C-Nano for textile and packaging -- Advanced P&C-Nano applications (Waterborne paints, Adhesives, Coatings, Dispersible lattices) -- Safety Risk, ELSI & Economics of P&C-Nano -- Green & Sustainable future with P&C-Nano.
Sommario/riassunto	This handbook examines the recent advances in the nanotechnology of polymers and ceramics, which possess outstanding mechanical properties and compatibility given their unique physical and chemical properties caused by the unusually large surface area to volume ratios and high interfacial reactivity. This handbook highlights the various compositions and morphologies of polymer and ceramic nanomaterials that can serve as powerful tools for the diverse applications in areas such as electronics, photonics, shape-memory alloys, biomaterials and biomedical nanomaterials, graphene-based technologies, and textiles and packaging. The handbook addresses safety, economics, green production and sustainability. The book contains a section on functionalization of these molecules, which only increases the possibility of developing even more versatile materials that can be fine-tuned for specific applications. Filling a gap in the literature, this handbook provides comprehensive coverage of properties, fabrication, characterization, functionalization methods and applications at both experimental and theoretical models scales. Economic, toxicological, regulatory, and environmental concerns regarding applications are also discussed in detail. Special attention is paid to sustainable approaches that reduce costs in terms of chemicals and time consumption. The book covers research trends, challenges, and prospective topics as well. .