1. Record Nr. UNINA9910298629503321

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| Titolo | Graphene-Based Polymer Nanocomposites in Electronics / / edited by Kishor Kumar Sadasivuni, Deepalekshmi Ponnamma, Jaehwan Kim, Sabu Thomas |
| Pubbl/distr/stampa | Cham : , : Springer International Publishing : , : Imprint : Springer, , 2015 |
| ISBN | 3-319-13875-8 |
| Edizione | [1st ed. 2015.] |
| Descrizione fisica | 1 online resource (383 p.) |
| Collana | Springer Series on Polymer and Composite Materials, , 2364-1886 |
| Disciplina | 54<br>541.2<br>541.2254<br>620.11295<br>620.11297<br>620.5<br>620115 |
| Soggetti | Polymers<br>Nanotechnology<br>Microtechnology<br>Microelectromechanical systems<br>Nanochemistry<br>Optical materials<br>Nanoscience<br>Microsystems and MEMS<br>Optical Materials<br>Nanophysics |
| Lingua di pubblicazione | Inglese |
| Formato | Materiale a stampa |
| Livello bibliografico | Monografia |
| Note generali | Description based upon print version of record. |
| Nota di bibliografia | Includes bibliographical references at the end of each chapters and index. |
| Nota di contenuto | Introduction: Graphene Nanocomposites: Role in Electronics -- Electrical Properties of Graphene Polymer Nanocomposites -- Graphene/Polymer Nanocomposites with High Dielectric Performance: Interface Engineering -- Multi Functional and Smart Graphene filled |

Polymers as Piezoelectrics and Actuators -- Graphene Polymer Nanocomposites for Fuel Cells -- Graphene Nanocomposites in Optoelectronics -- Graphene Filled Polymers in Photovoltaic -- Graphene Composites based Photodetectors -- Polymer/ Nanographite Composites for Mechanical Impact Sensing -- Graphene filled Polymers for Vapor / Gas Sensor Applications -- Development of Biosensors from Polymer Graphene Composites -- Graphene/Polymer Nanocomposites as Microwave Absorbers -- Graphene Nanocomposites for Electromagnetic Induction Shielding.

Sommario/riassunto

This book covers graphene reinforced polymers, which are useful in electronic applications, including electrically conductive thermoplastics composites, thermosets and elastomers. It systematically introduces the reader to fundamental aspects and leads over to actual applications, such as sensor fabrication, electromagnetic interference shielding, optoelectronics, superconductivity, or memory chips. The book also describes dielectric and thermal behaviour of graphene polymer composites - properties which are essential to consider for the fabrication and production of these new electronic materials. The contributions in this book critically discuss the actual questions in the development and applications of graphene polymer composites. It will thus appeal to chemists, physicists, materials scientists as well as nano technologists, who are interested in the properties of graphene polymer composites.