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Nota di contenuto	Front matter -- Foreword / Wegner, Gerhard -- Preface -- Contents -- Contributing authors -- About the editors -- 1. Introduction / Gauvin, R. -- Part I: Functional materials: Synthesis and applications -- 2. A primer on polymer colloids: structure, synthesis and colloidal stability / Al Shboul, A. / Pierre, F. / Claverie, J. P. -- 3. Synthesis, functionalization and properties of fullerenes and graphene materials / Rondeau-Gagné, S. / Morin, J.-F. -- 4. Ordered mesoporous silica: synthesis and applications / Florek, J. / Guillet-Nicolas, R. / Kleitz, F. -- 5. Nanoparticles: Properties and applications / Ritcey, A. -- 6. Conjugated polymers for organic electronics / Allard, N. / Leclerc, M. -- 7. Theoretical tools for designing microscopic to macroscopic properties of functional materials / Soldera, A. -- Part II: Development of new materials for energy applications -- 8. Electrochemical energy storage systems / Schougaard, S. B. / Bélanger, D. -- 9. Functional ionic liquids electrolytes in lithium-ion batteries / Rochefort, D. -- 10. Solid polymer proton conducting electrolytes for fuel cells / Bonis, C. de / D'Epifanio, A. / Mecheri, B. / Licoccia, S. / Tavares, A. C. -- 11. Supercritical adsorption of hydrogen on microporous adsorbents / Bénard, P. / Beaulieu, A.-M. / Durette, D. / Chahine, R. -- Part III: New

trends in sustainable development and biomedical applications -- 12. Advanced materials for biomedical applications / Mantovani, D. / Levesque, L. / Sabbatier, G. / Leroy, M. / Seifu, D. G. -- 13. Nanoparticles for magnetic resonance imaging (MRI) applications in medicine / Fortin, M.-A. -- 14. Microfluidics for synthesis and biological functional materials: from device fabrication to applications / Greener, J. -- 15. Protein- and peptide-based materials: a source of inspiration for innovation / Lefèvre, T. / Byette, F. / Marcotte, I. / Auger, M. -- 16. Nanocomposite coatings / Riedl, B. / Vardanyan, V. / Nkeuwa, W. N. / Kaboorani, A. / Landry, V. / Poaty, B. / Vlad, M. / Sow, C. -- Index

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## Sommario/riassunto

"Functional Materials textbook is not simply a review of the vast body of literature of the recent years, as it holds the focus upon various aspects of application. Moreover, it selects only a few topics in favor of a solid and thorough treatment of the relevant aspects. This book comes in a good time, when a large body of academic literature has been accumulated and is waiting for a critical inspection in the light of the real demands of application." Professor Gerhard Wegner, Max-Planck Institute for Polymer Research, Mainz, Germany The chapters cover three important fields in the development of functional materials: energy, environment, and biomedical applications. These topics are explained and discussed from both an experimental and a theoretical perspective. Functional organic and inorganic materials are at the center of most technological breakthroughs. Therefore, the understanding of material properties is fundamental to the development of novel functionalities and applications.

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