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Titolo	Commercialization of Nanotechnologies--A Case Study Approach // edited by Dermot Brabazon, Eva Pellicer, Fatima Zivic, Jordi Sort, Maria Dolors Baró, Nenad Grujovic, Kwang-Leong Choy
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Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Foreword -- Introduction -- The Current Status and Momentum in Nanotechnology Commercialisation -- Review of Production Routes of Nanomaterials -- Nanomaterials for Sustainable Energy Production and Storage: Present Day Applications and Possible Developments -- Integration of Nanostructured Thermoelectric Materials in Micro Power Generators -- Towards Voltage-Driven Nano-Spintronics: a Review -- Ferroelectric and Piezoelectric Nanomaterials -- Basic Properties, Characterization and Applications -- Friction at Nanoscale - Self-Assembled Monolayers -- Modeling of Self-Healing Materials with Nanocontainers using Discrete and Continuum Methods -- Nanomaterials for Skin Care -- Characteristics and Applications of

Silver Nanoparticles -- Nanotechnology in Ophthalmology -- Ever-Expanding Application Potentials for Iron-Based Nanomaterials: Catalyses and Biomedicine.

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Sommario/riassunto

This book covers diverse areas in which nanoscience and nanotechnology have led to significant technological advances and practical applications, with special emphasis on novel types of nanomaterials and their applicability into a new generation of nano- and micro-devices. Different nanomaterials are reviewed with a focus on several practical application areas and their commercial utilization. Production technologies of nanomaterials are presented as one of the challenges today. Sectors where nanotechnology has already significantly contributed are presented, along with specific nanotechnology solutions: energy related sectors, NEMS/MEMS, micro power generators, spintronics and healthcare. The basic properties and applications of nanostructured thermoelectric materials, ferroelectric and piezoelectric nanomaterials are reviewed. Examples of several developed thin-film thermogenerators are shown. A review of existing solutions and developing challenges are given regarding sustainable energy production, photovoltaics, solar cells, hydrogen economy and improved classes of batteries as contributions to green products and circular economy. Novel, highly promising areas in nanotechnology, are shown, such as voltage-driven nano-spintronics. Recent advances in friction characterisation at the nano level are described. Several proven nanomaterials have been reviewed pertaining to biomedicine. The use of nanomaterials in ophthalmology and cosmetic industry are reviewed, and the potential for silver nanoparticles and iron-based nanomaterials in biomedicine, also with recognised challenges and possible threats of non-controlled use of nanomaterials. This work is the result of joint efforts of different companies, academic, and research institutions participating in WIMB Tempus project, 543898-TEMPUS-1-2013-1-ES-TEMPUS-JPHES, "Development of Sustainable Interrelations between Education, Research and Innovation at WBC Universities in Nanotechnologies and Advanced Materials where Innovation Means Business", co-funded by the Tempus Programme of the European Union.

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