
Preface

In the last 20 years, researchers attracted attention through extensive number of publications in nanotechnology proving that this scientific area exploded exponentially and novel tools on advanced materials become available in science and technology. Indeed, nanotechnology has emerged as the newest pivotal technology for a wide range of applications. In this scenario it arises as multidisciplinary field with the large potential to bring together a range of disciplines covering novel ideas to solve old problems and create new products. So, some products have become available to employ nanotechnology as a base. The importance of nanotechnology had been recognized with Noble Prizes being awarded to researchers in nanomaterials discoveries such as fullerenes and graphene. The wide range of applications is strongly focused in the properties improvement of nanomaterials which already have being used in the medical, semiconductor, automotive, plastics and chemical industries, providing technological enhancement. On the other hand, the benefits of nanotechnology to society will become real when its transition to produce new products by using nanomanufacturing techniques and processes without causing high costs and toxicity risks to both humans and/or environment. This requires the nanotechnologies to be readily scalable in terms of volume and size as well as reduced of health risks and costs to finally make nanoproducts available to the huge market.

This book focuses on nanotechnology and its industrial aspects providing an overview on a wide range of applications. These include but not limited to the following: colloidal SNEDDS-systems as drug delivery for natural products applied on therapeutic skin wound healing; colloidal nanoemulsion system as a new strategy for the *in vitro* culture of follicular viability; nanotechnology as a powerful tool for natural anticancer agents; nanotechnology applied to electrode materials highlighting the layered double hydroxides (LDHs); novel synthesis for functional polymers and nanomaterials; principles and functionalization of thermoplastic elastomers for use in the energy, environment and healthcare; and nanocomposite materials for 3D printing.

The authors through this publication contribute to critical thinking in research, development and innovation on nanotechnology, seeking to promote inter and multidisciplinary knowledge aiming at to develop new materials, preserving environment and human health, with a view to the global commitments of sustainable development, conservation of natural resources, reduction of costs and social inequalities.

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