
Introduction

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Biographical notes: El-Sayed Ali Abdel-Aal is Professor and Head of Chemical and Electrometallurgy Division at Central Metallurgical R&D Institute (CMRDI), Egypt. He received his PhD from Cairo University, Egypt in Production of Phosphoric Acid. He was a visiting Professor at University of Florida, USA for about three years and to Technical University of Chemnitz, Germany for total seven months. His current research interests focus mainly on preparation and characterisation of advanced nano materials including but not limited to: metals, oxides, and hydroxyapatite. He has a special experience on the crystallisation of inorganic salts. Currently, he engaged in synthesis, coating and characterisation of hydroxyapatite doped with different ceramic particles for biomedical implant applications. He is an international expert in phosphate processing for phosphoric acid production.

Materials are essential for the economic growth of any country. They provide support to the down-stream industries and the entire industrial development of the nation. Maximisation of the use of materials would result in an increase of the added value as new products could be obtained from the materials and its processing intermediates. During the last two decades, new technologies have been developed in the areas of nanomaterials processing which allow its utilisation in advanced applications. However, the intermediates require further purification to produce advanced materials for advanced industrial applications. Scientific collaboration among scientists from a variety of disciplines can help in better understanding of the material processing and utilisation. R&D should focus on developing cost effective techniques to develop and utilise nanomaterials for solving the problems facing the world during the new millennium such as energy, environment, climate change, food and water supply.

In this regard, the International Conference on Materials Imperatives in the New Millennium (MINM 2010) has been initiated by the Central Metallurgical Research and Development Institute (CMRDI), Cairo, Egypt to share experience and exchange views between scientists all over the world. Some selected papers are published in this special issue.

On the regional level, CMRDI being a base of the Arab Association of Nanomaterials and Nanotechnology, arranged during the conference a regional meeting of the association to identify areas of the mutual cooperation between members and non-member countries, consequently the conference was a good forum for coordination of joint efforts.

This special issue will provide a good chance for readers to discuss the recent advances in processing technologies of nanomaterials and their subsequent manufacturing for production of ready-to-use products.