

Preface

Developments in Nanotechnology are fueled equally by theoretical modeling and prediction of the properties of nanomaterials as well as experimental synthesis, characterization and applications of nanomaterials. Nanoforms of particular interest are clusters, nanoparticles and thin films (i.e. 0D and 2D nanomaterials).

Nanoparticles of wide band gap semiconducting materials like TiO_2 , ZnO , SnO_2 having optical band gap (E_g) more than 3 eV are of special interests due to their possible applications in many areas such as dye sensitized solar cells (DSSC), transparent electronics, nanofluids, transparent conducting electrodes, sensors etc. Low cost, easy availability, eco-friendly nature of these materials, synthesis by relatively simple methods (sol-gel, hydrothermal, combustion etc.) makes them attractive candidates for such applications. Interest in thin / Ultra-thin / multilayer thin films is regained due to recent studies on graphene.

Current thematic issue of the Journal of Nano Research (JNR) presents research studies of a broad cross-section of the modeling of nanomaterials and clusters, synthesis and properties of oxide nanoparticles, and thin films. While synthesis of oxide nanoparticles is majorly done by sol-gel or hydrothermal route; their applications in different areas such as DSSC, nanofluids, composites, transparent conducting coatings are studied and presented here. Investigations related to Growth of thin films and thickness dependent properties of thin films are presented herewith. We are confident that readers will appreciate the present issue of the journal.

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