Special Issue

Advanced Nanoparticle Assembly

Message from the Guest Editor

The recent advances in nanoscience and nanotechnology have provided the sophisticated tools to fabricate, investigate and characterise new functional elements at low dimensions, such as nanoparticles. Nanoparticles, whose properties can be significantly different from their corresponding bulk counterparts are becoming the major building blocks to develop new materials with unprecedented properties. The wide variety of potential applications of nanoparticles in biomedical, optical and electronic fields, among others, has intensified the research in their efficient formation. Two distinct fabrication routes have been mainly followed: the top-down approach, where physical processes are exploited for slicing and dicing macroscopic entities down to the nanoscale, and the bottom-up approach, where atomic-scale chemical forces drive the molecular self-assembly. Practically speaking, the top-down route offers unparalleled control and reproducibility down to a few nanometres in feature size but at high cost for large area processing, while the bottom-up approach naturally applies for macroscopic scale nano-patterning albeit without the fine feature and reproducibility control.

Guest Editor

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Materials (ISSN 1996-1944) was launched in 2008. The journal covers twenty-five comprehensive topics: biomaterials, energy materials, advanced composites, advanced materials characterization, porous materials, manufacturing processes and systems, advanced nanomaterials and nanotechnology, smart materials, thin films and interfaces, catalytic materials, carbon materials, materials chemistry, materials physics, optics and photonics, corrosion, construction and building materials, materials simulation and design, electronic materials, advanced and functional ceramics and glasses, metals and alloys, soft matter, polymeric materials, quantum materials, mechanics of materials, green materials, general. *Materials* provides a unique opportunity to contribute high quality articles and to take advantage of its large readership.

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