

Special Issue

Frontiers in Nanostructure Stability: Nanocrystalline Materials

Message from the Guest Editor

Materials that are produced within the nanometer range have been found to possess novel mechanical, chemical, thermal and electrical properties compared to materials prepared on a micron scale. Therefore, by controlling the nanostructure of materials, better properties can be engineered. For instance, ceramic and polymer materials can incorporate carbon nanotubes, which can provide unique electrical and thermal properties. The use of nanoparticles in composites can enhance strength, chemical and thermal resistance, yet reduce weight. The development of nanostructured coatings containing hard ceramic nanoparticles can produce tough and wear-resistant surfaces or change colour when a current is applied or have self-cleaning and antifouling properties.

Nanotechnology can be regarded as a key technology which can lead to the development of nanodevices and systems that offer improved properties. Therefore, developments in nanostructured materials not only influence advances in technology, but has economic and social implications.

Guest Editor

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Message from the Editor-in-Chief

Nanoscience and nanotechnology are exciting fields of research and development, with wide applications to electronic, optical, and magnetic devices, biology, medicine, energy, and defense. At the heart of these fields are the synthesis, characterization, modeling, and applications of new materials with lower nanometer-scale dimensions, which we call “nanomaterials”. These materials can exhibit unusual mesoscopic properties and include nanoparticles, coatings and thin films, metal–organic frameworks, membranes, nano–alloys, quantum dots, self-assemblies, 2D materials such as graphene, and nanotubes. Our journal, *Nanomaterials*, has the goal of publishing the highest quality papers on all aspects of nanomaterial science to an interdisciplinary scientific audience. All of our articles are published with rigorous refereeing and open access.

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