Special Issue

Transparent Conductive Nanomaterials: Science and Applications

Message from the Guest Editors

Transparent conducting materials (TCMs), which are able to simultaneously conduct electricity and transmit visible light, have been the focus of many fundamental and applied research studies in recent decades. Many are the optoelectronic applications concerned, such as photovoltaics, transparent electronics, light-emitting diodes, transparent heaters, touch screens, and more. Most of the TCMs used in industry to date rely on the use of transparent conductive oxides (TCOs), mainly n-type metal oxide layers, such as indium tin oxide (ITO). However, other n-type and p-type TCO have also been studied extenstively. Moreover, the industrial need for transparent and mechanically flexible electrodes has prompted the search for emerging TCMs lately. These concern, for instance, metallic nanowire networks, metallic grids or meshes, conductive polymers, carbon-based materials such as graphene and carbon nanotube networks, as well as thin metallic films sandwiched between thin oxide layers. This Special Issue will highlight the latest advances in the study of various types of nanostructures for TCM applications, and experimental, theoretical and integration approaches are welcome.

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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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