Editorial

Carbon Nanomaterials and Related Nanostructures: Synthesis, Characterization, and Application

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Since the discovery of buckyballs in 1985, the family of carbon materials has been rapidly growing. From zero-dimensional (0D) fullerene, 1D carbon nanotubes (CNTs), and recent 2D graphene to traditional 3D nanoporous carbon and nanodiamond, carbon nanomaterials exhibit a variety of structures and forms due to the existence of three hybridization forms, namely, sp^3 , sp^2 , and sp^1 , of carbon atoms.

In recent years, they have increasingly gained interests from both scientific and industrial communities due to the unique physical and chemical properties. They show diverse potential applications in structure, electronics, energy, environment, water, and others. The purpose of this special issue is to report some latest research results on synthesis, characterization, and applications of carbon nanomaterials and related nanostructures. The accepted papers cover various carbon materials, namely, CNTs, graphene, carbon nanofibers, nanodiamonds, amorphous carbon films, carbon nanocomposite, graphite-like layered materials, and so on. These papers cover a wide range of topics related to synthesis and applications of these carbon nanomaterials in mechanics and tribology, thermal management, energy conversion (photoelectronic devices, solar cells, and photocatalysis), energy storage (lithium-ion batteries), and drug delivery fields. Moreover, two papers present theoretical calculation of carbon nanomaterials in electronic, optical, and surface adsorption properties using density functional theory.

The guest editors hope that this special issue will be of great interest to readers.

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