Special Issue

Single-Walled Carbon Nanotubes: From Preparation to Device Applications

Message from the Guest Editor

As a typical one-dimensional nanomaterial, single-walled carbon nanotubes (SWCNTs) have exhibited excellent physical and chemical properties due to their unique atomic structures and quantum size effect. The interband transitions between van Hove singularities determine specific electronic and optoelectronic properties of SWCNTs. Moreover, the interface interactions between SWCNTs and molecules (or photons) are totally different from those of other nanomaterials owing to only surface atoms on SWCNTs. Therefore, SWCNTs are prospective candidates for fabricating high-performance nanodevices. The existence of SWCNTs with different chiralities seriously limits the further development of high-performance SWCNT-based nanodevices. Thus, the controllable synthesis techniques of SWCNTs with desired diameter or chirality have been highly desired. Therefore, the main purpose of this Special Issue presents recent state-of-the-art research on the properties, synthesis, characterization, and device applications of SWCNTs.

Guest Editor

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