Special Issue

Ultrafast Terahertz Photonics in Nanoscale and Applications

Message from the Guest Editor

The terahertz frequency band acts as a bridge between microwaves and light, boasting the advantage of a large bandwidth, like light, and wireless transmission capability, like microwaves, making it a candidate for next-generation information technology. Benefiting from the development of terahertz ultrafast photonics, the advantages of this frequency band are beginning to be fully leveraged. A series of high-performance techniques have been designed in multiple fields, such as ultrafast modulation, ultra-broadband detection, and terahertz signal generation, highlighting the role of terahertz frequencies in next-generation information technology. This Issue aims to introduce the state of the art of terahertz ultrafast photonics in relation to functional devices and system applications, seeking to facilitate the application of terahertz ultrafast photonics in next-generation information technology and other related fields.

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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. We are proud of our increasing impact factor and ability to provide rapid decisions to authors.

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