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Recent Research on Nanophotonics and Nanoscale Quantum Optics

Guest Editor:

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Message from the Guest Editor

Nanomaterials have ushered in a new era of fundamental research and technological innovation, owing to the unique electronic, photonic, and optoelectronic properties that are unattainable in their bulk counterparts. In addition, the ease with which nanomaterials can be transferred onto photonic circuits to create hybrid devices provides new opportunities for scalable quantum photonic devices. Nanophotonics and nanoscale quantum optics are also highly tunable through external degrees of freedom (such as ultrafast optical excitations, electric/magnetic field, strain, twist angle, doping, and Floquet engineering). This not only offers extraordinary opportunities to underpin new physics and initiate new research fields but also provides unprecedented possibilities to stimulate technological advances.

The goal of this Special Issue is to showcase the latest advances in photonics and quantum optics in low-dimensional materials and their heterostructures. Potential topics include, but are not limited to, the following: excitons, phonons, polaritons, magnons, collective excitations, photoresponses, single-photon emission/detection, and symmetry-breaking photonics/optoelectronics.

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Editor-in-Chief

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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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