Special Issue

Intelligent Metaphotonics: From Design to Advanced Optoelectronic Applications

Message from the Guest Editors

Metasurfaces, as planar artificial nanostructures with subwavelength unit cells, enable flexible manipulation of electromagnetic wavefront, polarization, amplitude, phase and frequency at an ultra-thin interface. Compared with traditional bulky optical devices, metasurfaces exhibit prominent advantages in miniaturization, integration and low loss, and have become one of the most vibrant research frontiers in photonics, electromagnetics and metamaterials over the past decade. Metasurfaces are continuously expanding their application boundaries, covering holography, optical imaging, beam steering, polarization engineering, optical computing, sensing, wireless communication, and so on. This Special Issue aims to gather cutting-edge original research and insightful review articles on intelligent design methods for advanced photonics devices and metasurfaces, metasurface deep-learning-assisted novel fabrication methods for these metasurfaces, and their wide and advanced multifunctional applications. We welcome contributions that address fundamental challenges as well as experimentally verified functional devices.

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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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