Special Issue

Advances in Metasurfaces: Novel Designs and Applications

Message from the Guest Editor

This Special Issue explores cutting-edge developments in the rapidly evolving field of metasurfaces—ultrathin, planar arrays of subwavelength meta-atoms designed to precisely manipulate electromagnetic waves. It focuses on novel design methodologies, including advanced computational techniques (topology optimization, inverse design, and machine learning), innovative meta-atom geometries and material compositions (dielectrics, semiconductors, 2D materials, and tunable materials), and strategies for achieving multi-functionality, extreme bandwidth, or high efficiency. Crucially, this Special Issue emphasizes emerging and transformative applications enabled by these design advances. Key areas covered include next-generation flat optics (ultra-compact lenses, holographic displays, and polarization control), enhanced imaging and sensing systems (LiDAR, biosensors, and spectroscopy), advancements in optical communications (multiplexing and beam steering), novel antenna technologies, efficient light harvesting and emission control, and the development of active, tunable, or reconfigurable metasurfaces for dynamic wavefront shaping.

Guest Editor

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Message from the Editor-in-Chief

You are invited to contribute a research article or a comprehensive review for consideration and publication in *Photonics* (ISSN 2304-6732). *Photonics* is an online open access journal covering both the fundamental and applications of optics and photonics. *Photonics* strives to provide an avenue to allow authors to disseminate their scientific findings—both theoretical/ simulations and experimental works—in highly accessible peer-reviewed journal publications. The manuscript in *Photonics* will be handled with quick turnaround production processing time. We welcome authors to submit their manuscripts for publications in *Photonics*. Our goal in *Photonics* is to enable fast dissemination of high impact works to the scientific community.

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