Special Issue

Topological Photonic Microdevices for Next-Generation Sensing and Modulation

Message from the Guest Editors

Topological photonics is a rapidly evolving field that uses geometrical and topological concepts to design photonic structures for controlling light. Inspired by the discovery of the quantum Hall effects and topological insulators in condensed matter, research has demonstrated novel topological phenomena, particularly robust unidirectional broadband light propagation, through fabricated photonic devices with high performance and immunity to fabrication errors and defects. This shows great promise for various applications. The flexibility and diversity of topological photonics systems enable new opportunities to realize exotic topological models and explore topological effects in innovative ways. This Special Issue invites contributions (research papers, communications, and reviews) on experimental and theoretical advances in topological photonics, covering platforms like photonic crystals, waveguides, metamaterials, cavities, optomechanics, silicon photonics, and circuit QED, with applications spanning on-chip communication, optical switches, lasers, sensors, terahertz devices, quantum systems, and beam splitters.

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