Special Issue

Emerging Applications of Vortex Beams

Message from the Guest Editors

The study of vortex beams, distinguished by their helical phase fronts and quantized orbital angular momentum (OAM), has rapidly evolved from fundamental research to cutting-edge applications across photonics, quantum technologies, optical communications, and advanced imaging. Recent progress in structured light generation, metasurface engineering, and computational methods has accelerated the deployment of vortex beams in transformative domains, including ultra-high-capacity data transmission, super-resolution microscopy, and quantum information processing. This Special Issue highlights the latest advancements in vortex beam applications, emphasizing innovative methodologies, experimental breakthroughs, and emerging application cases that redefine photonics systems.

We believe that a Special Issue will serve as a critical reference point for researchers exploring the frontiers of structured light. By consolidating interdisciplinary advances, we aim to foster innovation and cross-domain collaboration, ultimately driving new paradigms in the study of light–matter interaction and optical engineering.

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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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