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Special Issue Reprint

Photonic and Optoelectronic Devices and Systems, 4th Edition

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This Reprint presents a collection of peer-reviewed research articles focused on recent advances in photonic and optoelectronic devices and systems. The contributions cover innovative materials, device architectures, design methodologies, fabrication techniques, numerical modeling, and experimental characterization of integrated and free space photonic technologies. Key topics include optical waveguides, photonic integrated circuits, optical sensors, microring and resonator-based devices, plasmonics, metamaterials, photonic crystals, optical communications, semiconductor lasers, light emitting devices, nonlinear photonics, and emerging applications in quantum and artificial intelligence-enabled photonic systems. Emphasis is placed on solutions that improve device performance, sensitivity, efficiency, integration density, and manufacturability while addressing practical challenges in sensing, communications, healthcare, environmental monitoring, and information processing. By bringing together interdisciplinary contributions from academia and industry, this Reprint provides an up-to-date overview of current developments and highlights future directions for next generation photonic and optoelectronic technologies. It serves as a valuable reference for researchers, engineers, and graduate students working in the rapidly evolving field of photonics.



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