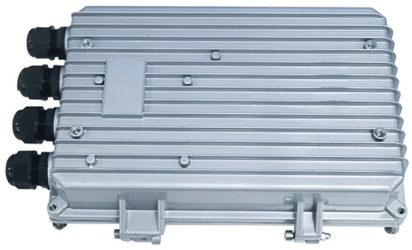
Micro-nano optoelectronic fusion devices



Overview

This Research Topic covers fabrication, light management mechanisms of micro-nanostructures in optoelectronic devices, and their emerging applications in display and lighting, solar energy harvesting, telecommunication, light sensing and detection, and other fields . This Research Topic covers fabrication, light management mechanisms of micro-nanostructures in optoelectronic devices, and their emerging applications in display and lighting, solar energy harvesting, telecommunication, light sensing and detection, and other fields . Due to unique optical and electrical properties, micro-/nano-structures have become an essential part of optoelectronic devices. Here, we summarize the recent developments in micro-/nano-structures fabricated by laser technologies for optoelectronic devices. The fabrication of. Optoelectronic devices, including lasers, light-emitting diodes (LED), optical detectors and solar cells, have gained substantial attention in scientific research and been widely used in military and national economy fields such as laser detection and measurement, display and solid-state lighting. The relentless pursuit of miniaturization in the field of photonics has led to the emergence of micro–nano optical devices as a cornerstone of modern technology. It combines the cutting-edge achievements of photonics and nanotechnology, which can realize many brand-new functions on the basis of local electromagnetic interactions and become an indispensable key. Optoelectronics and photonics devices employ well-designed micro/nanoscale structures to intentionally manipulate their electrical and optical properties, which results in the obtainment of desirable performances.

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Article Content

Recent advances in multidimensional micro/nano structures for ...

The review systematically analyzes how micro/nano structure dimensions control light-matter interactions, carrier generation, and transport, with a focus on their applications in

Laser micro-nano processing of optoelectronic materials

This review comprehensively summarizes recent progress in the laser micro-nano processing of optoelectronic materials, including the

Micro-/Nano-Structures Fabricated by Laser

Micro-/nano-structures in optoelectronic devices for performance improvement are reviewed. In addition, typical optoelectronic devices with micro

Editorial: Recent Advances in Micro-Nanostructured Optoelectronic Devices

To present these inspiring developments, we launched a Research Topic in Frontiers in Chemistry entitled “ Recent Advances in Micro-Nanostructured Optoelectronic Devices.” This Research Topic

Advancing the Frontier of Photonics: Exploring

These devices, with their ability to manipulate light at the smallest scales, are at the heart of numerous scientific and industrial applications, such

Recent advances in multidimensional micro/nano structures for ...

By highlighting the key advancements of current optoelectronic devices and remaining challenges in high-precision fabrication and integrated design of materials and multiple dimensions, this review

Reconfigurable Micro/Nano-Optical Devices Based on Phase

In recent years, numerous efforts have been devoted to exploring innovative micro/nano-optical devices (MNODs) with reconfigurable functionality, which is highly significant because of the

Micro-nanostructured Optoelectronic Devices

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The Development and Progression of Micro-Nano Optics

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This paper will summarize the development of micro-nano optics in four directions: micro-nano emitting materials and devices, micro-nano optical

Micromachines | Special Issue : Micro/Nano-Structure Based ...

Accordingly, this Special Issue seeks research papers and review papers on the experimental and modeling advancements in micro/nano-structured optoelectronics and photonics

Editorial: Recent Advances in Micro-Nanostructured ...

In brief, this Research Topic presents some excellent minireviews and leading-edge researches on the recent advances in micro-nanostructured optoelectronic devices, which shows

Photonics | Special Issue : Micro-Nano Optical Devices

Micro-nano-optics combines the best of both photonics and nanotechnology. Micro-nano-optical devices are leading the development of the new optical electronic

The Development and Progression of Micro-Nano Optics

Micro-Nano optics is also an important development direction of the new optoelectronics industry at present. It plays an irreplaceable role in optical

Micromachines | Special Issue : Optoelectronic Fusion

Keywords optoelectronic chip optoelectronic fusion technology heterogeneous integration wafer-level chip fabrication, packaging and testing intelligent

Recent advances in multidimensional micro/nano structures for ...

Micro/nano optoelectronic devices, which convert light into electrical signals or vice versa, are pivotal in the development of next-generation technologies such as sensing, imaging, energy

The Development and Progression of Micro-Nano Optics

Abstract Micro-Nano optics is one of the most active frontiers in the current development of optics. It combines the cutting-edge achievements of photonics and nanotechnology, which can realize many

Editorial: Recent Advances in Micro-Nanostructured Optoelectronic Devices

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Micro-/Nano-Structures Fabricated by Laser Technologies for ...

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The fabrication of micro-/nano-structures by various laser technologies for optoelectronic devices for performance improvement and challenges and prospects are discussed. Due to unique optical and

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