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Article
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05 Mar 2025

Controlling the wavefront aberration of a large-aperture and high-precision holographic diffraction grating

Study on wavefront control of holographic grating. This research presents a novel technique for the fabrication of meter-size and nano-precision holographic gratings.

Wenhao Li, Xinyu Wang ... Wenyuan Zhou

Article
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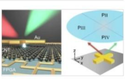
05 Mar 2025

Programmable electron-induced color router array

We demonstrate an active manipulation of dichromatic photon momentum at a deep subwavelength scale via electron-induced CRs, and design an encrypted display device based on programmable modulation of CR array.

Cheng Chi, Zhibo Dang ... Yongtian Wang



Article
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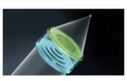
05 Mar 2025

High-performance achromatic flat lens by multiplexing meta-atoms on a stepwise phase dispersion compensation layer

We demonstrate theoretically and experimentally that the stepwise phase dispersion compensation layer releases the numerical aperture, operation bandwidth, and aperture size from the tradeoffs of achromatic flat lens, allowing their flexible design.

Jingen Lin, Jinbei Chen ... Xue-Hua Wang



Article
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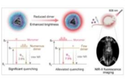
04 Mar 2025

Alleviating NIR-II emission quenching in ring-fused fluorophore via manipulating dimer populations for superior fluorescence imaging

This study presents a dimer-dominated emission quenching mechanism that enhances second near-infrared emission in ring-fused fluorophores by reducing dimer populations for high-resolution vascular fluorescence imaging.

Xiaofei Miao, Mingxuan Jia ... Wenbo Hu



Article
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04 Mar 2025

Chip-integrated quantum signature network over 200 km

A novel chip-based QDS network, utilizing an advanced protocol, achieves a signing rate of 0.04 times per second over 200 km for 1-Mbit messages, representing a significant advancement in QDS.

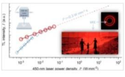
Yongqiang Du, Bing-Hong Li ... Kejin Wei

Article
Open Access
04 Mar 2025

Unlocking the potential of up-conversion charging for rapid and high-resolution optical storage with phosphors

Up-conversion charging (UCC) enables rapid, high-resolution optical storage in phosphors, achieving 0.01-second data writing with excellent retention and rewritability. UCC paves the way for advanced optical storage solutions.

Lu Chen, Xueqing Liu ... Yichun Liu



News & Views
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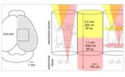
27 Feb 2025

A large field of view 2- and 3-photon microscope

Jack Waters



News & Views
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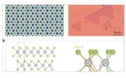
27 Feb 2025

3R-WS_2 crystals as a breakthrough in compact entangled photon sources

Xinyu Yang, Mengxi Tan & David J. Moss



News & Views
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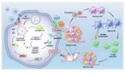
Photon-triggered pyroptosis and ferroptosis dual-functional nanoplatform for cancer immunotherapy

A novel strategy for pyroptosis and ferroptosis dual-functional inducers and combined immune activators enhanced photoimmunotherapy.

Quansheng Cheng, Qingcheng Wang & Songnan Qu

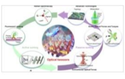


Review Article
Open Access
27 Feb 2025

Optical sorting: past, present and future

This review offers a comprehensive overview of the history, development, and perspectives of various optical sorting techniques, categorised as *passive* and *active* sorting methods.

Meng Yang, Yuzhi Shi ... Xinbin Cheng



News & Views
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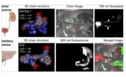
Next generation drug clearance insights: real-time tracking in hepatobiliary and renal systems

Won Hur, Gi Hun Seong & Hak Soo Choi



Article
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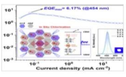
26 Feb 2025

Multiple defects renovation and phase reconstruction of reduced-dimensional perovskites via in situ chlorination for efficient deep-blue (454 nm) light-emitting diodes

In situ chlorination strategy was proposed to renovate multiple defects along with reconstruction of phases in RDPs for efficient and spectrally stable deep-blue PeLEDs with a record EQE of 6.17%.

Mubing Yu, Tingxiao Qin ... Jiaqi Zhu



Article
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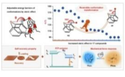
26 Feb 2025

Accurately adjusted phenothiazine conformations: reversible conformation transformation at room temperature and self-recoverable stimuli-responsive phosphorescence

Stimuli-responsive phosphorescence with self-recovery property has been achieved for the first time by precisely modulating molecular conformations of phenothiazine moieties.

Yuan Gao, Wentao Yuan ... Zhen Li



Article
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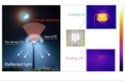
Sky cooling for LED streetlights

Dang and Gan et al. reported a sky-cooling strategy for LED streetlights using a nanoporous polyethylene architecture that is highly transparent to infrared radiation and reflective in the visible spectrum.

Saichao Dang, Hasan H. Almahfoudh ... Qiaoqiang Gan



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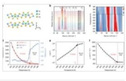
Ultrasensitive photoelectric detection with room temperature extremum

Tuntan Wu, Yongzhen Li ... Zhiming Huang



Article
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26 Feb 2025

Coherence synthesis in nonlinear optics

Nonlinear synthesis of spatial coherence using second-order nonlinear photonic crystals. The coherence induced by the smiley face is synthesized in the far field of the crystal.

Zihao Pang & Ady Arie

Correction
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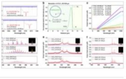
25 Feb 2025

Correction: Robust low threshold full-color upconversion lasing in rare-earth activated nanocrystal-in-glass microcavity

Zhigang Gao, Lugui Cui ... Guoping Dong



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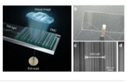
An achromatic metasurface waveguide for augmented reality displays

Zhongtao Tian, Xiuling Zhu ... Xiao Wei Sun



Review Article
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25 Feb 2025

Advancements in ultrafast photonics: confluence of nonlinear optics and intelligent strategies

Automatic mode-locking techniques, the integration of intelligent technologies with nonlinear optics offers the promise of on-demand intelligent control, potentially overcoming the inherent limitations of traditional ultrafast pulse systems.

Qing Wu, Liuxing Peng ... Haoran Meng

Review Article
Open Access
25 Feb 2025

Progress on intelligent metasurfaces for signal relay, transmitter, and processor

This article offers a unified perspective on how intelligent metasurfaces facilitate wireless communication in the ways of signal relay, transmitter, and processor.

Chao Qian, Longwei Tian & Hongsheng Chen