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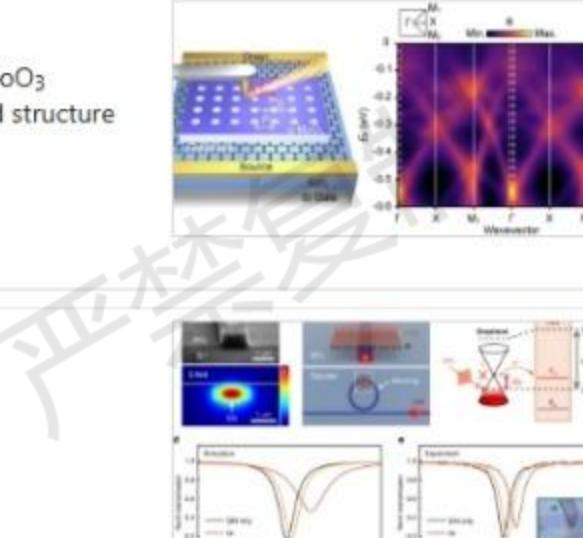
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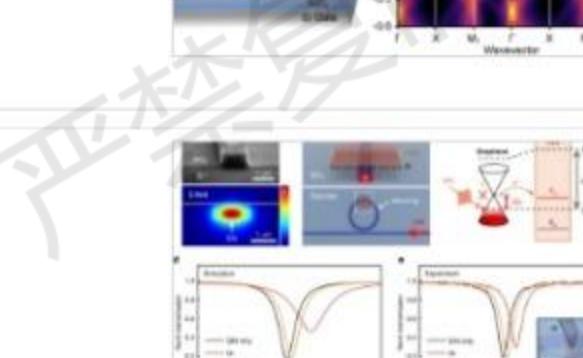


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This work demonstrates actively controlled, low-loss phonon-polaritonic Bloch modes in a graphene-gated  $\alpha$ -MoO<sub>3</sub> polaritonic crystal, which enables enhanced near-field resonances and switchable far-field leakage through band structure modulation.

Junbo Xu, Ke Yu ... Tao Jiang



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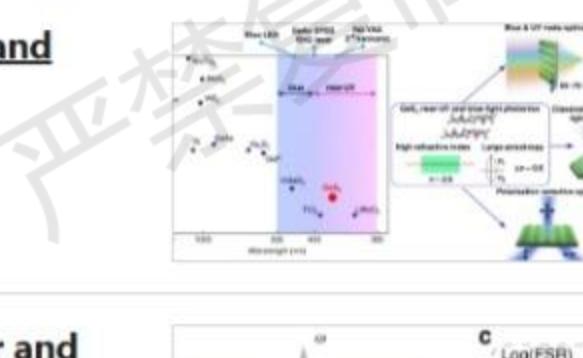
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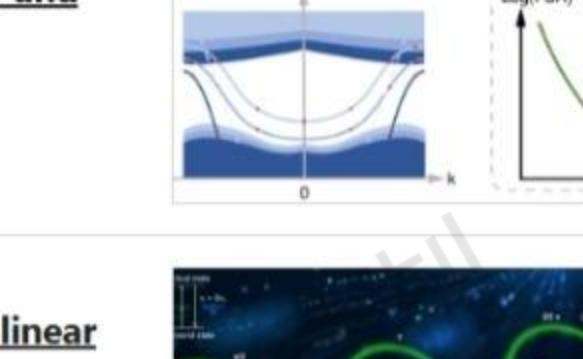
Di Sun, Wenxin Zheng ... Liangliang Liang



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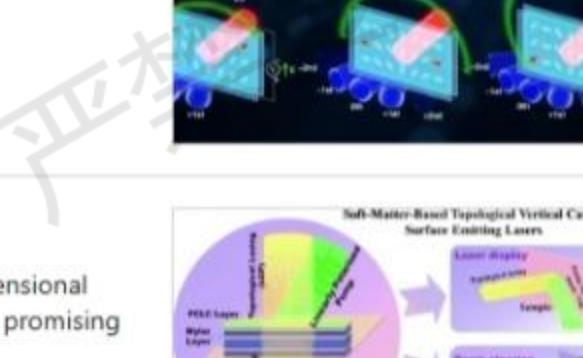
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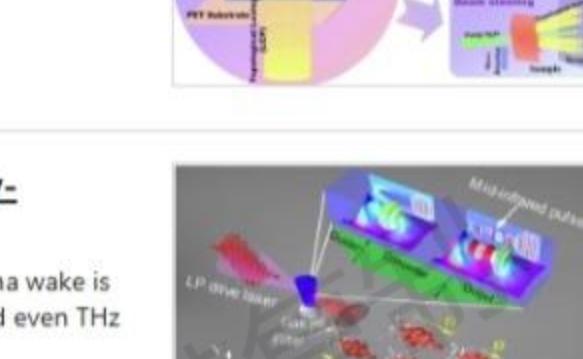
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A flexible topological vertical-cavity surface-emitting laser (VCSEL) is demonstrated by integrating two one-dimensional optical superlattices composed of structurally distinct polymerized chiral liquid crystals and Mylar films, offering promising prospects for laser display and beam steering applications.

Yu Wang, Shiqi Xia ... Jingjun Xu



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A novel magnetized plasma rotator based on Frequency-Variable Faraday Rotation (FVFR) in the nonlinear plasma wake is put forward, which can manipulate efficiently the polarization of relativistic mid to far-infrared optical pulses and even THz waves.

Dong-Ao Li, Guo-Bo Zhang ... Tong-Pu Yu



Article [Nonlinear light conversion and infrared photodetection with laser-printed plasmonic metasurfaces supporting bound states in the continuum](#)

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Laser-printed gold metasurface supporting symmetry-protected plasmonic quasi-bound states in the continuum (qBIC) was fabricated, comprehensively characterized and applied to demonstrate the first qBIC-empowered field-effect transistor device with HgTe quantum dot active medium.

Dmitrii V. Pavlov, Ksenia A. Sergeeva ... Andrey L. Rogach

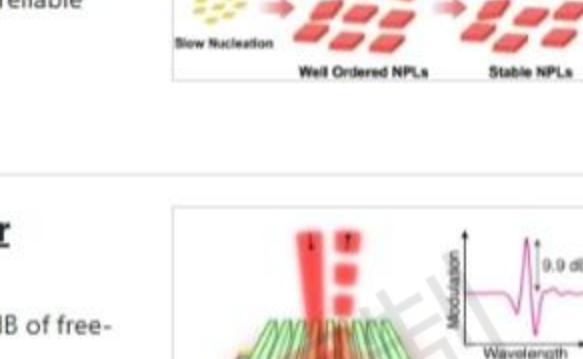


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We establish operator-enabled holography as a new paradigm, transcending intrinsic physical dimensions of light to achieve high-capacity and high-security multiplexing.

Feiyang Shen, Zhengyang Mao ... Yuping Chen

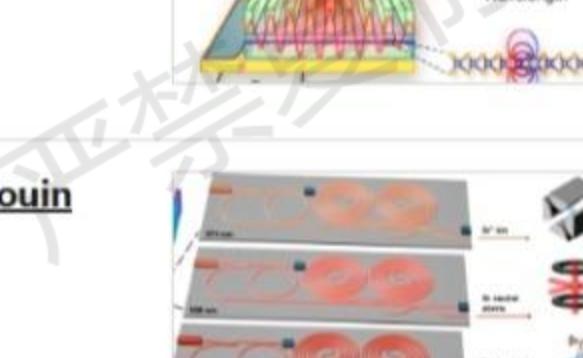


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Alloying formamidinium into the A-site of red-emitting CsPbI<sub>3</sub> perovskite nanoplatelets enhances their long-term stability and production of linearly polarized light through improved superlattice formation, offering a pathway towards reliable polarized light sources.

Woo Hyeon Jeong, Junzhi Ye ... Robert L. Z. Hoye



Article [Electrically tunable strong coupling in a hybrid-2D excitonic metasurface for optical modulation](#)

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Electrically tunable strong coupling is achieved at ambient conditions in an excitonic metasurface, enabling 9.9 dB of free-space optical modulation.

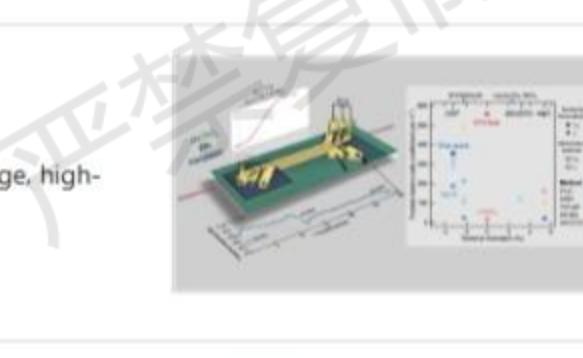
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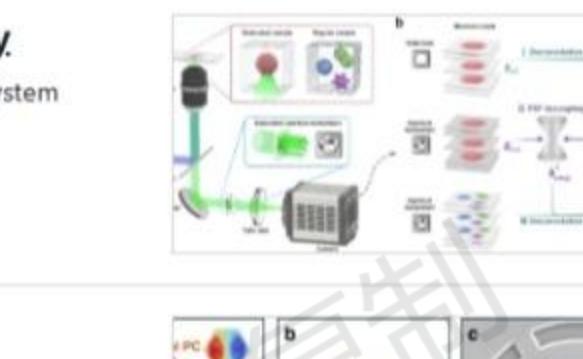
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Epitaxial BaTiO<sub>3</sub> on LSAT shows large Pockels coefficients via polymorphic phase boundaries, enabling low-voltage, high-speed electro-optic modulators.

Chenguang Deng, Yutong He ... Qian Li



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Sample priors enable point spread function decoupling in computational fluorescence microscopy, improving system characterization and imaging quality.

Ziwei Wang, Wanyu Gu ... Qifeng Yu



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Fei Ding



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A representation of ultrawideband PVDF/co-polymer-based ultrasound (US) transducer technology for high-frequency hemispherical optoacoustic tomography and its potential use in hand vascular, dental, ophthalmic, and endoscopic applications.

Amanda P. Siegel, Rayyan Manwar & Kamran Avanaki



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Stefan Gi-Stanciu & Edoardo Charbon

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Inspired by human vision, a MoS<sub>2</sub> phototransistor with gate-tunable sensitivity enables precise detection of low-contrast targets and strong noise suppression for next-generation intelligent machine vision systems.  
Ruyue Han, Dayu Jia ... Dong-Ming Sun

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We demonstrate a 3D generalized vector vortex array generation with full polarization, phase, OAM, and spatial control, by using joint optimization in different diffraction orders based on a single-layer metasurface.  
Xue Zhang, Yang Cui ... Lingling Huang

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High-performance optoelectronic Ising machine with 4,096 spins achieves superior accuracy, speed, and stability, solving benchmark and real-world traffic optimization problems beyond conventional computing.  
Zhenwei Hu, Yanbo Ren ... Ming Li

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QEPAS and LITES, collectively called quartz-enhanced laser spectroscopy technology, may bring a paradigm shift in gas sensing for applications.  
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Quantum walk with coherent multiple translations induces fast quantum gate operations  
The strong modulation introduces coherent-multiple-transition into discrete time quantum walks in the frequency space, inducing topological band and fast quantum gate operations.  
Yiqiang Zhang, Xin Qiao ... Luqi Yuan

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SUANPAN: scalable photonic linear vector machine  
SUANPAN: A programmable and reconfigurable photonic linear vector machine with extreme scalability formed by a series of emitter-detector pairs as the independent basic computing units and implemented through time-space encoding.  
Ziyue Yang, Chen Li ... Yidong Huang

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Frequency-comb enabled spectrum-correlation reflectometry for distributed fiber-optic sensing  
Frequency-comb enabled spectrum-correlation reflectometry employs a dual-sideband interleaved configuration to perform parallel multi-frequency interrogation, providing high frequency response over a broad optical spectral range.  
Zhonghong Lin, Zhiyong Zhao ... Marcelo A. Soto

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Light storage in light cages: a scalable platform for multiplexed quantum memories  
We implement 3D-nanoprinted hollow-core waveguides—so-called light cages—as atomic vapor-based quantum memories. These structures significantly enhance light-matter interactions within a compact, chip-integrated platform, marking a step forward in scalable and versatile photonic quantum technologies.  
Esteban Gómez-López, Dominik Ritter ... Oliver Benson

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Ivan Saetchnikov, Elina Cherniavskaya ... Anton Saetchnikov

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Kang Li, Yuchen Zhang ... Jian Wang

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Advances in waveguide to waveguide couplers for 3D integrated photonic packaging  
The automated packaging and assembly of a photonic chiplet to an optical interposer and printed circuit board is shown, where optical inter-chip couplers, wirebonds, and vias provide 3D waveguide connectivity.  
Drew Weninger, Samuel Serna ... Anuradha Agarwal

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Paintable soft photonic architectures featuring multi-stable light-actuation  
Programmable multi-stable liquid crystal photonic devices achieve paintable patterning on flexible substrates through innovative photoswitch technology and viscosity control, offering breakthrough for anti-counterfeiting, information encryption, and smart window films.  
Honglong Hu, Wentan Wan ... Wei-Hong Zhu

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Large-area photonic circuits for terahertz detection and beam profiling  
We demonstrate a large-area, integrated photonic architecture in thin-film lithium niobate relying on the electro-optic modulation of a telecom beam to perform field-resolved terahertz detection and beam profiling.  
Alessandro Tomasin, Amirhassan Shams-Ansari ... Ileana-Cristina Benea-Chelmus

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The plasmonic BTO-on-SiN platform – beyond 200 GBd modulation for optical communications  
This plasmonic BTO-on-SiN platform enables 256 GBd high-speed data transmission. It can further operate beyond 200 GBd for IQ and O-band racetrack modulators within highly compact device footprints.  
Manuel Kohli, Daniel Chelladurai ... Juerg Leuthold

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This work introduces an optofluidic photoacoustic sensor enabling highly-sensitive, label-free, baseline-free detection of freely flowing particles and cells without surface binding or immobilization, offering robust, real-time analysis in complex media.  
Jie Liao, Maxwell Adolphson ... Lan Yang

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V-band ultra-fast tunable thin-film lithium niobate Fourier-domain mode-locked optoelectronic oscillator  
Rui Ma, Zijun Huang ... Xinlin Cai

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