

nature > light.science.& applications > browse articles

## Browse Articles

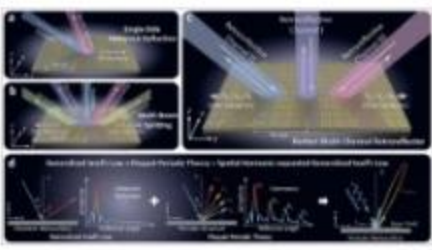
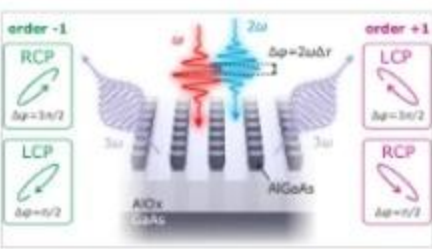
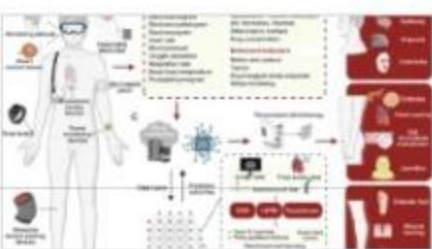
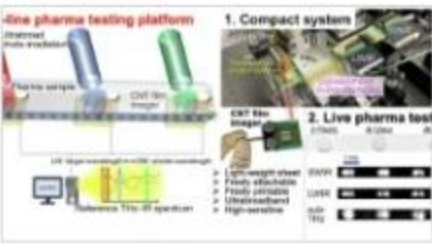
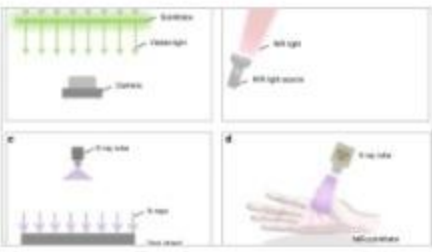
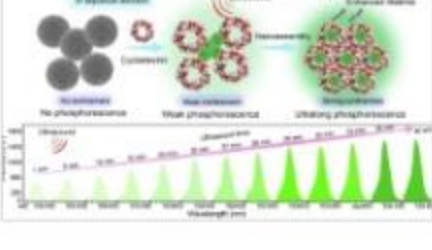
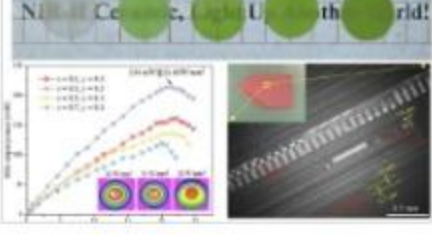
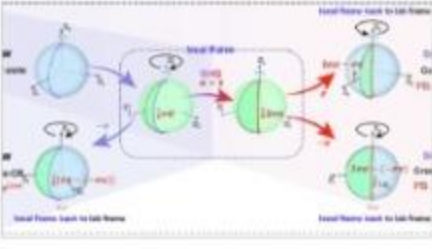
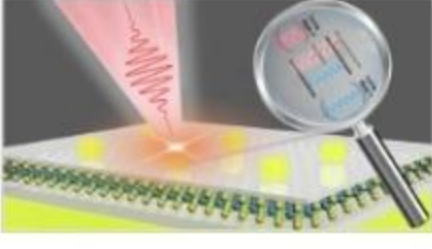
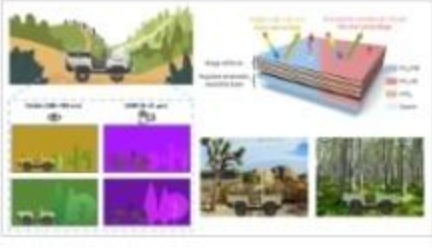
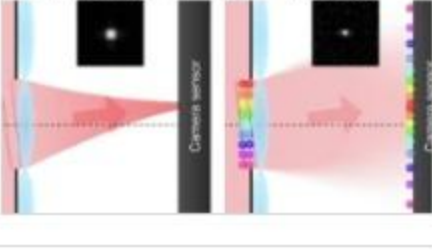
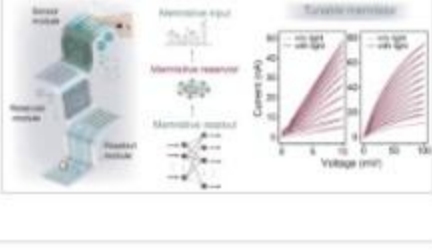
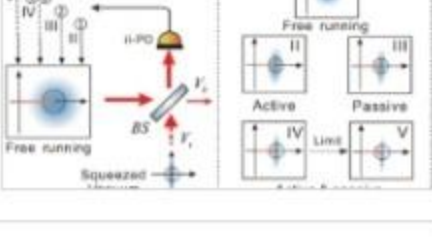
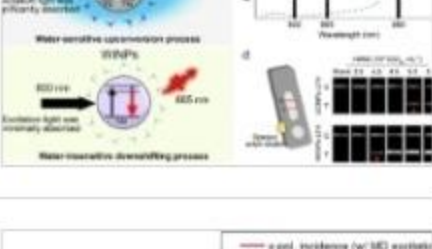
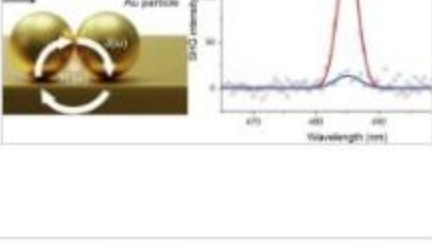

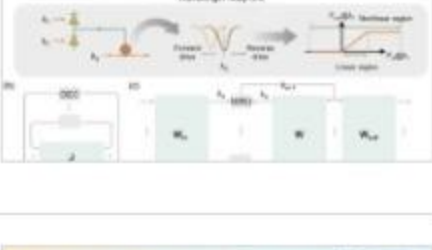
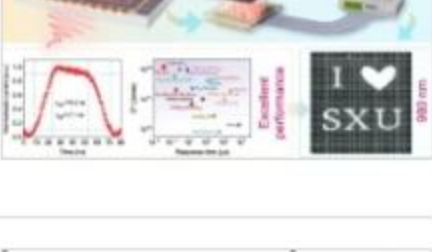
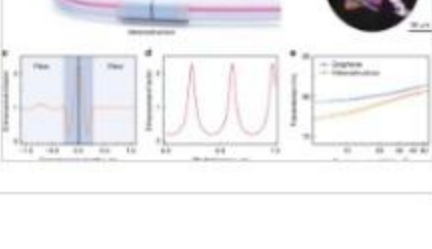
Article Type	Year
All	All

<b>Article</b> Open Access 25 Sept 2025	<b>High-speed all-optical neural networks empowered spatiotemporal mode multiplexing</b>  We have developed an OAM-based spatiotemporal multiplexing system using an all-optical neural network, demonstrating the tremendous potential of OAM-based multidimensional multiplexing methods for high-speed and large-capacity optical communications.  Fu Feng, Xiaolong Li ... Xiacong Yuan	
<b>Article</b> Open Access 25 Sept 2025	<b>Non-invasive large-scale imaging of concurrent neuronal, astrocytic, and hemodynamic activity with hybrid multiplexed fluorescence and magnetic resonance imaging (HyfMRI)</b>  This work presents a hybrid fluorescence and magnetic resonance imaging (HyfMRI) platform for concurrent measurements of neuronal, astrocytic, and brain-wide hemodynamic responses in mice.  Zhenyue Chen, Yi Chen ... Daniel Razansky	
<b>Article</b> Open Access 24 Sept 2025	<b>Generation of tunable Raman soliton and dispersive wave beyond 4 μm in centimeter-length fluorotellurite fibers</b>  Tunable 4584 nm Raman soliton and 4177 nm dispersive wave generation were demonstrated in centimeter-lengths, dispersion-engineered fluorotellurite fibers pumped by a 3.54 μm laser.  Juan Wang, Shunbin Wang ... Yichun Liu	
<b>Article</b> Open Access 23 Sept 2025	<b>Coupled non-Hermitian skin effect with exceptional points</b>  We unveil that coupling two non-Hermitian systems with independent skin modes can induce tunable exceptional points, serving as a versatile system to reveal their interplay.  Guo-Huai Wang, Ran Tao ... Xu-Lin Zhang	
<b>Article</b> Open Access 23 Sept 2025	<b>Electrodynamics of photonic temporal interfaces</b>   Emanuele Galiffi, Diego Martínez Solís ... Andrea Alù	
<b>Article</b> Open Access 22 Sept 2025	<b>Efficient deep-blue LEDs based on colloidal CsPbBr3 nanoplatelets meeting the Rec.2020 standard</b>  Acid-assisted short-chain thio-tributylphosphine ligand passivation improves the surface stability of colloidal CsPbBr3 nanoplatelets, enabling deep-blue PeLEDs with CIE coordinates (0.136, 0.046) that meet the Rec.2020 standard.  Yusheng Song, Sheng Cao ... Bingsuo Zou	
<b>Article</b> Open Access 22 Sept 2025	<b>Second and third harmonic generation in topological insulator-based van der Waals metamaterials</b>   Alessandra Di Gaspare, Sara Ghayeb Zamharir ... Miriam S. Vitiello	
<b>Review Article</b> Open Access 22 Sept 2025	<b>Future trends of display technology: micro-LEDs toward transparent, free-form, and near-eye displays</b>  Micro-LEDs will lead next-generation display technology such as transparent, deformable and near-eye displays, enabling a wide range of applications with superior performance.  Tae Soo Kim, Jung-El Ryu ... Jiho Shin	
<b>Light People</b> Open Access 19 Sept 2025	<b>Light People   Prof. Wei Lu spoke about infrared physics</b>   Chenzi Guo & Peng Wang	
<b>Article</b> Open Access 19 Sept 2025	<b>Multi-depth switching by triple wavefront modulation of quarter-waveplate geometric phase lenses for vergence-accommodation-matching extended reality</b>  Schematic representation of nine-depth accommodative virtual images spanning the full perceivable depth range without inducing vergence-accommodation conflict (VAC), achieved using a bi-stacked quarter-waveplate geometric phase lens (QWP GPL) module. A conceptual illustration of VAC-resolved XR operation is also provided, demonstrating the ideal alignment between virtual image planes and real-world scene depths under intended system behavior.  Jung-Yeop Shin, Jae-Won Lee ... Hak-Rin Kim	
<b>Editorial</b> Open Access 18 Sept 2025	<b>Shining brightly into the future with <i>Light: Science &amp; Applications</i></b>  Xi-Cheng Zhang & Yun-Feng Xiao	
<b>Article</b> Open Access 18 Sept 2025	<b>Dynamic holographic display with addressable on-chip metasurface network based on lithium niobate photonics</b>   Jitao Ji, Zhilin Ye ... Tao Li	
<b>Article</b> Open Access 18 Sept 2025	<b>On-chip topological edge state cavities</b>  The topological edge state cavity (TESC) robustly confines and circulates light through edge states spanning the entire Brillouin zone, enabling simultaneous enhancement of quality factor and free spectral range.  Wenhao Wang, Zhonglei Shen ... Ranjan Singh	
<b>Article</b> Open Access 18 Sept 2025	<b>Miniaturized chaos-assisted Spectrometer</b>   Yujia Zhang, Chaojun Xu ... Xuhan Guo	
<b>Article</b> Open Access 17 Sept 2025	<b>Scaling up for end-to-end on-chip photonic neural network inference</b>  This work presents a scalable on-chip optical neural network leveraging partially coherent sources for real-valued computing and wavelength-multiplexed parallelism, enhancing accessibility and integration potential.  Bo Wu, Chaoran Huang ... Xinliang Zhang	
<b>Article</b> Open Access 17 Sept 2025	<b>Laser-emission vibrational microscopy of microdroplet arrays for high-throughput screening of hyperlipidemia</b>  Laser-emission vibrational microscopy quantifies liquid viscosity with whispering gallery mode lasers, enabling high-throughput screening of hyperlipidemia disease.  Zhonghao Li, Zhihan Cai ... Tao Zhu	
<b>Article</b> Open Access 17 Sept 2025	<b>Engineering topological chiral transport in a flat-band lattice of ultracold atoms</b>  We demonstrate topological chiral transport in an inherently flat-band-localized system, enabled by the elegant engineering of a helical Floquet channel via flexible control of synthetic gauge fields.  Hang Li, Qian Liang ... Bo Yan	
<b>Article</b> Open Access 16 Sept 2025	<b>Construction of optical spatiotemporal skyrmions</b>  We extend optical skyrmions from the spatial domain to the spatiotemporal domain, creating stable picosecond skyrmion wavepackets using transverse-OAM vectorial sculpturing.  Houan Teng, Xin Liu ... Qiwen Zhan	
<b>Article</b> Open Access 16 Sept 2025	<b>On-chip single-crystal plasmonic optoelectronics for efficient hot carrier collection and photovoltage detection</b>   Yunxuan Zhu, Sai C. Yelishala ... Longji Cui	
<b>Research Highlight</b> Open Access 15 Sept 2025	<b>Plasmonic photothermal printing of all-metal-oxide electronics</b>  Eric Mazur	



[nature](#) > [light: science & applications](#) > browse articles

## Browse Articles

Article Type	Year	
All ▾	All ▾	
<b>Article</b> Open Access 15 Sept 2025	<b><u>Missing harmonic dynamics in generalized Snell's law: revealing full-channel characteristics of gradient metasurfaces</u></b>	
SH-GSL combines gradient metasurfaces and Floquet theory to control fundamental and high-order spatial harmonics, enabling abnormal reflection, multi-beam splitting, and perfect multi-channel retroreflection.		
Yueyi Zhang, Fengyuan Han ... Chao-Hai Du		
<b>Article</b> Open Access 15 Sept 2025	<b><u>All-optical polarization encoding and modulation by nonlinear interferometry at the nanoscale</u></b>	
We demonstrate polarization encoding of upconverted light with orthogonal polarization states into opposite diffraction orders of a metasurface, enabling all-optical tuning between linear and circular polarization by adjusting the pump pulse phase delay.		
Yigong Luan, Attilio Zilli ... Marco Finazzi		
<b>Review Article</b> Open Access 15 Sept 2025	<b><u>Challenges and opportunities in next-generation LED therapeutic devices</u></b>	
This review highlights recent progress and challenges in wearable and implantable LED-based therapeutic devices, along with potential solutions. It also outlines clinical requirements and manufacturing pathways for future phototherapy systems.		
Chenxi Wang, Qiang Yu ... Min Lu		
<b>Article</b> Open Access 11 Sept 2025	<b><u>In-line multi-wavelength non-destructive pharma quality monitoring with ultrabroadband carbon nanotubes photo-thermoelectric imaging scanners</u></b>	
Freely attachable carbon nanotube terahertz-infrared imager sheet performs in-line, dynamic, and real-time detailed testing of pharmaceutical pill products in an on-site non-destructive monitoring manner.		
Miki Kubota, Yuya Kinoshita ... Kou Li		
<b>Article</b> Open Access 11 Sept 2025	<b><u>Single-shot X-ray and near-infrared (NIR) dual-mode fusion imaging based on bifunctional NIR scintillators</u></b>	
Peng Ran, Lurong Yang ... Yang (Michael) Yang		
<b>Article</b> Open Access 11 Sept 2025	<b><u>Ultrasound-responsive phosphorescence in aqueous solution enabled by microscale rigid framework engineering of carbon nanodots</u></b>	
Ultrasound-responsive triplet excitons emission in CNDs with a tunable lifetime up to 1.25 s in aqueous solution via microscale rigid framework engineering strategy have been achieved.		
Yachuan Liang, Haochun Shao ... Hui Jing		
<b>Article</b> Open Access 11 Sept 2025	<b><u>Laser-driven luminescent ceramic-converted near-infrared II light source for advanced imaging and detection techniques</u></b>	
<b>TOC:</b> Images of polished MgOx%Ni <sup>2+</sup> , y%Cr <sup>3+</sup> (x = 0-0.7, y = 0 and 0.3) ceramics under natural light and NIR-II output power of laser-driven NIR-II device based on MgOx%Ni <sup>2+</sup> , 0.3%Cr <sup>3+</sup> (x = 0.1-0.7) ceramics under different incident blue laser power densities. This work paves a new avenue for the future development of high-performance Ni <sup>2+</sup> -activated NIR-II emissive luminescence ceramics for laser-driven non-destructive real-time high-power NIR-II imaging and detection applications.		
Simin Gu, Huiwang Lian ... Jing Wang		
<b>Article</b> Open Access 10 Sept 2025	<b><u>Reconfigurable nonlinear Pancharatnam-Berry diffractive optics with photopatterned ferroelectric nematics</u></b>	
Reconfigurable nonlinear Pancharatnam-Berry liquid crystals have been proposed, serving as a design framework for developing multifunctional dynamic nonlinear optics devices.		
Hui-Feng Chen, Xin-Yu Tao ... Yan-Qing Lu		
<b>Article</b> Open Access 10 Sept 2025	<b><u>Giant two-photon upconversion from 2D exciton in doubly-resonant plasmonic nanocavity</u></b>	
Two-photon upconversion of 2D exciton was enhanced by 2440-fold in doubly-resonant nanocavity due to combined field localization and Purcell effect.		
Fangxun Liu, Haiyi Liu ... Weiwei Liu		
<b>Article</b> Open Access 10 Sept 2025	<b><u>Color-thermal multispectral camouflage with VO<sub>2</sub>-based dynamic regulator</u></b>	
A VO <sub>2</sub> -based dynamic regulator achieves color-thermal multispectral camouflage spanning the visible and infrared spectra.		
Chengcong Li, Cuicui Cao ... Xun Cao		
<b>Article</b> Open Access 08 Sept 2025	<b><u>Position-correlated biphoton wavefront sensing for quantum adaptive imaging</u></b>	
Inspired by classical Shack-Hartmann wavefront sensing, the spatial aberration of position-correlated biphotons can be efficiently measured using a microlens array, paving the way for genuine quantum adaptive optics.		
Yi Zheng, Zhao-Di Liu ... Guang-Can Guo		
<b>Article</b> Open Access 08 Sept 2025	<b><u>Fast-hyperspectral imaging remote sensing: Emission quantification of NO<sub>2</sub> and SO<sub>2</sub> from marine vessels</u></b>	
A fast-hyperspectral imaging remote sensing technique was proposed to quantify nitrogen dioxide and sulfur dioxide emissions from marine vessels.		
Chengzhi Xing, Shaocong Wei ... Cheng Liu		
<b>Article</b> Open Access 08 Sept 2025	<b><u>Optoelectronic polymer memristors with dynamic control for power-efficient in-sensor edge computing</u></b>	
Tunable mV-level optoelectronic polymer memristors enabling ultra-low power in-sensor reservoir computing for highly accurate and efficient edge computing applications.		
Jia Zhou, Wen Li ... Mingdong Yi		
<b>Article</b> Open Access 08 Sept 2025	<b><u>Bright squeezed light in the kilohertz frequency band</u></b>	
Ruixin Li, Bingnan An ... Yaohui Zheng		
<b>News &amp; Views</b> Open Access 05 Sept 2025	<b><u>Water-insensitive down-shifting nanoparticles for sensitive biosensing</u></b>	
Water-insensitive nanoparticles enable stable, high-contrast signals, facilitating highly sensitive avian influenza virus detection in complex biological samples with low power.		
Jiang Ming, Sikun Hu & Fan Zhang		
<b>Article</b> Open Access 05 Sept 2025	<b><u>Enhanced magnetic second-harmonic generation in an ultra-compact plasmonic nanocavity</u></b>	
We demonstrate the Lorentz-driven second-harmonic generation using magnetic dipole resonance in an ultra-compact plasmonic nanocavity. Enhanced electromagnetic fields are confined and spatially overlapped, enabling tenfold enhancement.		
Yaorong Wang, Ilya Razdolski ... Danguyuan Lei		
<b>News &amp; Views</b> Open Access 04 Sept 2025	<b><u>Photonics and microwaves merge to improve computing flexibility</u></b>	
Hongwei Wang & Guangwei Hu		
<b>News &amp; Views</b> Open Access 04 Sept 2025	<b><u>Nonlinear optoelectronic engine drives monolithic integrated photonic computing</u></b>	
A compact, nonlinear optoelectronic photodetectors and micro-ring modulators engine enables scalable, energy-efficient photonic processors for AI and optimization, addressing key challenges in optical Ising machines and photonic recurrent neural networks.		
Sha Zhu & Ning Hua Zhu		
<b>Article</b> Open Access 04 Sept 2025	<b><u>A monolithically integrated near-infrared imager with crystallization- and oxidation-modulated tin-lead perovskites</u></b>	
A monolithically integrated near-infrared imager is achieved with the crystallization- and oxidation-modulated tin-lead perovskites.		
Zhichun Yang, Jingjing Liu ... Suotang Jia		
<b>Article</b> Open Access 03 Sept 2025	<b><u>Robust mode-locking in all-fiber ultrafast laser by nanocavity of two-dimensional heterostructure</u></b>	
Jiahui Shao, Guangjie Yao ... Hao Hong		

## About Nature Portfolio

[About us](#)  
[Press releases](#)  
[Press office](#)  
[Contact us](#)

## Discover content

[Journals A-Z](#)  
[Articles by subject](#)  
[protocols.io](#)  
[Nature Index](#)

## Publishing policies

[Nature portfolio policies](#)  
[Open access](#)

## Author &amp; Researcher services

[Reprints & permissions](#)  
[Research data](#)  
[Language editing](#)  
[Scientific editing](#)  
[Nature Masterclasses](#)  
[Research Solutions](#)

## Libraries &amp; institutions

[Librarian service & tools](#)  
[Librarian portal](#)  
[Open research](#)  
[Recommend to library](#)

## Advertising &amp; partnerships

[Advertising](#)  
[Partnerships & Services](#)  
[Media kits](#)  
[Branded content](#)

## Professional development

[Nature Awards](#)  
[Nature Careers](#)  
[Nature Conferences](#)

## Regional websites

[Nature Africa](#)  
[Nature China](#)  
[Nature India](#)  
[Nature Japan](#)  
[Nature Middle East](#)