April 16, 2025
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An artistic interpretation and representation of low photon budget Gabor holographic microscopy for cell imaging with increased quality due to a proposed holographic reconstruction jointly minimizing twin image and shot noise contributions. **View the article.**

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Romain Quidant

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VIEWPOINTS

Optical Nonlinearity of Transparent Conducting Oxides: More Metallic than Realized

Ieng-Wai Un, Naama Harcavi, and Yonatan Sivan*

ACS Photonics 2025, 12, 4, 1718-1721 **(Viewpoint)** Open Access
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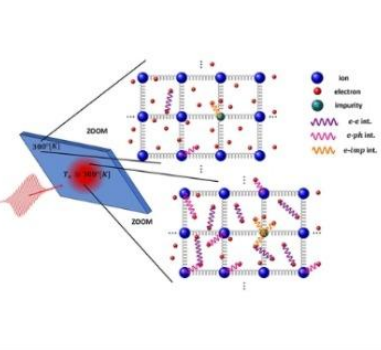

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PERSPECTIVES

Metaoptic Computational Imaging

Charles Roques-Carmes*, Kai Wang, Yuanmu Yang, Arka Majumdar, and Zin Lin*

ACS Photonics 2025, 12, 4, 1722-1733 **(Perspective)**
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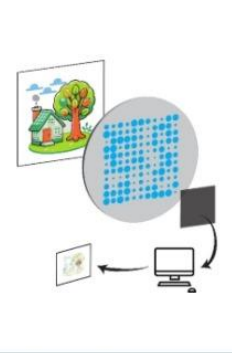

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Aloof Electron Probing of In-Plane Surface Photovoltaic Charge Distributions on GaAs Surfaces

Zilin Chen, Wayne Cheng-Wei Huang*, and Herman Batelaan

ACS Photonics 2025, 12, 4, 1734-1738 **(Letter)** Open Access
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Re-defining Non-tracking Solar Cell Efficiency Limits with Directional Spectral Filters

Alan R. Bowman, Samuel D. Stranks*, and Giulia Tagliabue*

ACS Photonics 2025, 12, 4, 1739-1745 **(Letter)** Open Access
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Tunable Photoconductivity Polarity in a Two-Dimensional Ferromagnet for Enhanced Image Recognition

Junning Mei, Yu Chen, Zefen Li, Jiaxin Wu, Shuangxing Zhu, Ruan Zhang, Ying Liu, Daoda An, Guanyuan Qiao, Shentong Li, Kenji Watanabe, Takashi Taniguchi, Fucai Liu, and Xinghan Cai*

ACS Photonics 2025, 12, 4, 1746-1753 **(Letter)**
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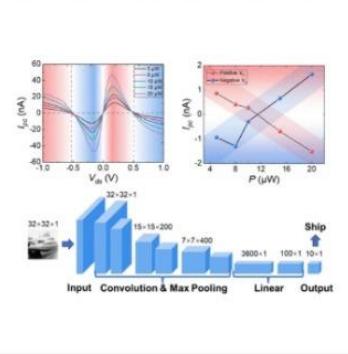

Tunable Laser Using Transverse Cavity Surface Emitting Laser Working near Exceptional Point

Tongyao Wu, Qian Cai, Belal Jahannia, Chandraman Patil, Jiachi Ye, Mohsen Ahmadian, Hamed Dalir, and Elham Heidari*

ACS Photonics 2025, 12, 4, 1754-1759 **(Letter)**
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ARTICLES

Integrated Opto-Synaptic IGZO Transistors for Image Recognition Fabricated at Room Temperature

Shu Ming Qi, Jia Cheng Li, Yang Hui Xia, Zi Chun Liu, De Dai, Ting Lu Song, Hui Xia Yang, Yuan Xiao Ma*, and Ye Liang Wang*

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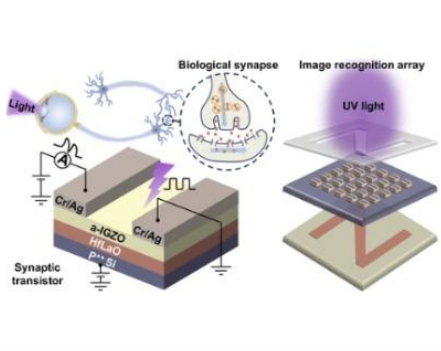

Hybrid Iterating-Averaging Low Photon Budget Gabor Holographic Microscopy

Mikolaj Rogalski*, Piotr Arcab, Emilia Wdowiak, José Ángel Picazo-Bueno, Vicente Micó, Michal Józwik, and Maciej Trusiak*

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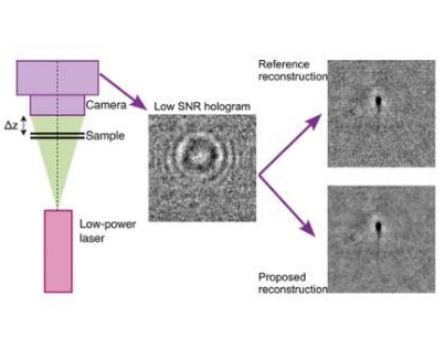

Intrinsic Optical Response of Levitating Upconverting Single Particles

Laura Martinez Maestro, Miguel A. Antón, Eduardo Cabrera-Granado, Rosa Weigand, and Javier Hernandez-Rueda*

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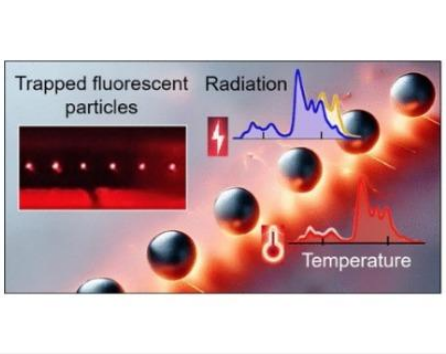

Ultralow-LO-Power Silicon Photonic Coherent Receiver with Balanced Ge/Si Avalanche Photodiodes

Weichao Sun, Hengzhen Cao, Jin Xie, Yuluan Xiang, Ting Chen, Jingshu Guo, Huan Li, Zejie Yu, and Daoxin Dai*

ACS Photonics 2025, 12, 4, 1793-1801 **(Article)**
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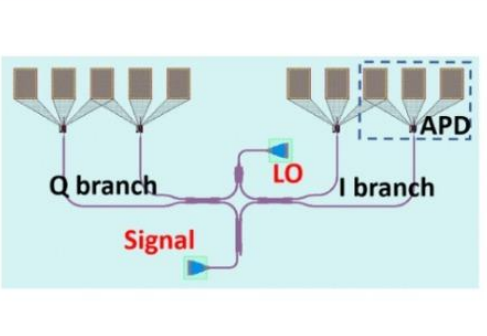

Spatially Resolved Light-Induced Multiband Response of Controllable 2*H*-MoTe$_2$/Graphene Vertical Heterojunction

Changyi Pan, Sheng Ni, Jiazhen Zhang, Donghai Zhang, Haoxuan Li, Xiaoyan Liu, Fengyi Zhu, Jingwei Ling, Chixian Liu, Tianye Chen, Rui Zhang, Tianning Zhang, Yufeng Shan, Changlong Liu*, Yan Sun, Huiyong Deng*, and Ning Dai*

ACS Photonics 2025, 12, 4, 1802-1811 **(Article)**
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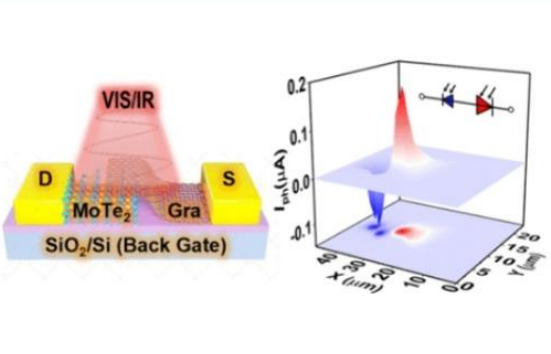

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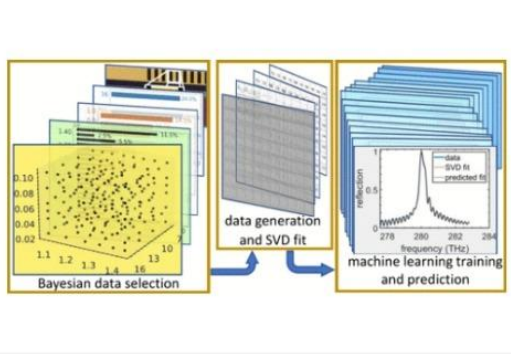

Quantitative Terahertz Communication Evaluation of Compact Valley Topological Photonic Crystal Waveguides

Zhao-Hua Xu, Jiajun He, Xiaoyuan Hao, Ya-Qi Song, Hang Ren*, Quan Xu*, Jiaguang Han, and Su Xu*

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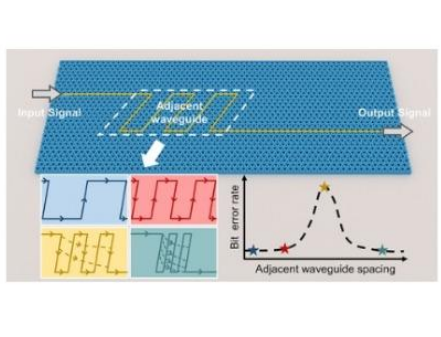

Long-Range and Dead-Zone-Free Dual-Comb Ranging for the Interferometric Tracking of Moving Targets

Sandro L. Camenzind*, Lukas Lang, Benjamin Willenberg, Justinas Pupeikis, Hayk Soghomonyan, Robert Presl, Pabitro Ray, Andreas Wieser, Ursula Keller, and Christopher R. Phillips

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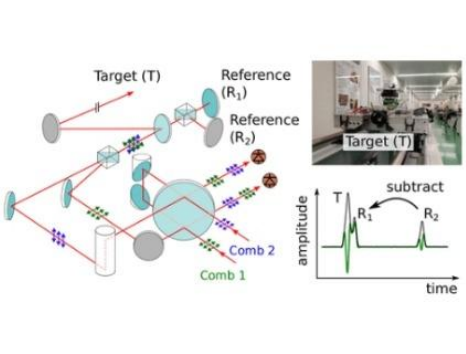

Self-Healing Behavior of Piezoelectric Crystals Studied Using Polarized Light

Nishkarsh Kumar, Jeeban Kumar Nayak*, Surojit Bhunia*, Shubham Chandel, Asima Pradhan, C. Malla Reddy, and Nirmalya Ghosh

ACS Photonics 2025, 12, 4, 1840-1848 **(Article)**
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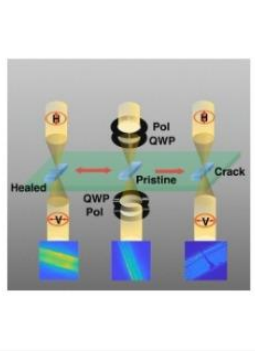

Inversely Designed Compact 12-Channel Mode Decomposition Spectrometer for On-Chip Photonics

Jihoon Choi, Koray Aydin, Young Ki Hong*, and Heeso Noh*

ACS Photonics 2025, 12, 4, 1849-1856 **(Article)**
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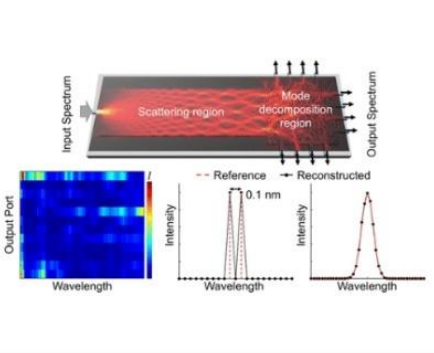

Ultraviolet Metalens Based on Nonlinear Wavefront Manipulation of Lithium Niobate Metasurfaces

Yunan Liu, Bo Wang*, Leyong Hu, Xu Ji, Tingyue Zhu, Ruhao Pan*, Haifang Yang, Changzhi Gu, and Junjie Li*

ACS Photonics 2025, 12, 4, 1857-1864 **(Article)**
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Scattering-free Plasmonic Brewster Effect via Metasurfaces

Xinyan Zhang, Xingshuo Cui, Tong Cai*, Weiqi Cai, Tony Low, Hongsheng Chen*, and Xiao Lin*

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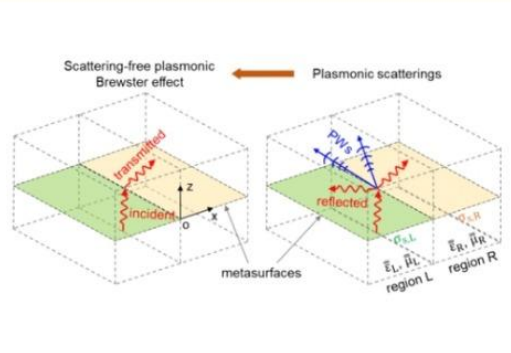

Quantum Theory of Photon Pair Creation in Photonic Time Crystals

Jaime E. Sustaeta-Osuna*, Francisco J. García-Vidal, and P. A. Huidobro*

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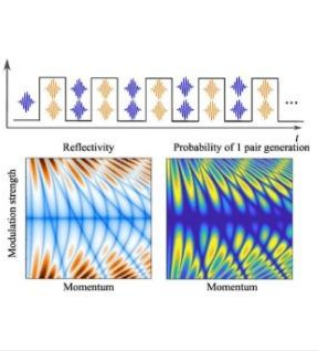

Eliminating Triplet-State Annihilation and Converting Black Triplets into Bright Singlets for Enhancing Light Emission from Thermally Activated Delayed Fluorescence-Based OLEDs Driven by an Elaborately Designed Short Pulse Voltage

Bo Wang, Jing Chen, Jingjing Wang, Teng Peng, Junhong Liu, Jun Yang, Keyi Zhang, Yinqiong Zhou, Yuanjun Li, Qiang Li, Feng Chen, Jinfeng Guo, Qiusong Chen, Xiaoli Chen, and Zuhong Xiong*

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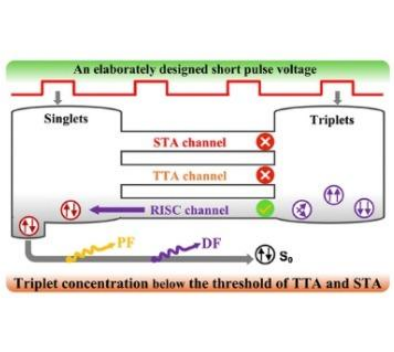

Cavity-Enhanced Acousto-Optic Modulators on Polymer-Loaded Lithium Niobate Integrated Platform

Zhi Jiang, Danyang Yao*, Yu Gao, Xu Ran, Jianguo Wang, Xuetao Gan*, Yan Liu, Yue Hao, and Genquan Han

ACS Photonics 2025, 12, 4, 1891-1899 **(Article)**
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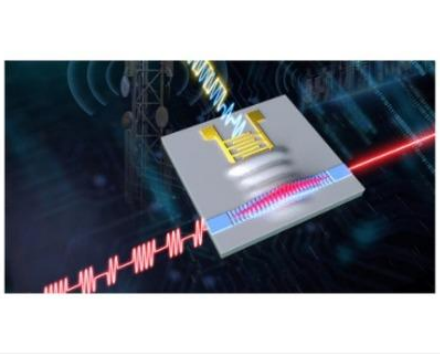

Ultrafast Charge Migration and Efficient Charge Separation in Dodecahedron CsPbBr$_3$–Semiconductor Janus Heterostructures

Kaliyamoorthy Justice Babu, Ayushi Shukla, Gurpreet Kaur, Arshdeep Kaur, Ramchandra Saha, Himanshu Bhatt, and Hirendra N. Ghosh*

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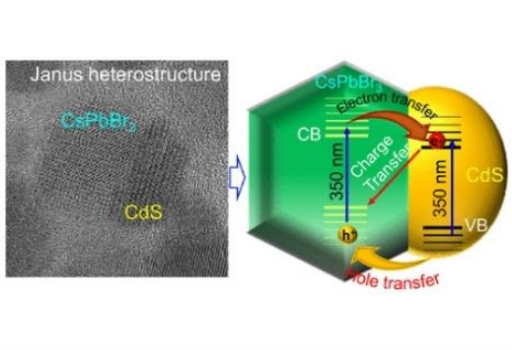

Maneuverable Optical Selection of Multi-Branch Exciton-Polariton Modes in Disk-Shaped Perovskite Microcavities

Yifan Dong, Hao Wu, Xiaokun Zhai, Baili Li, Qixian Xie, Zhenyu Xiong, Peicheng Liu, Yanmei Li, and Yuan Ren*

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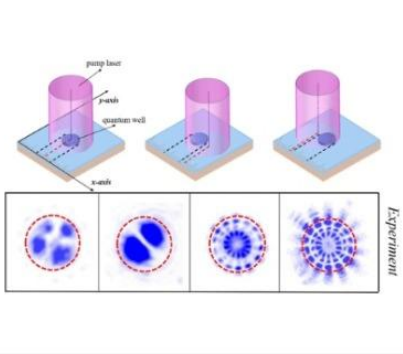

Ultracompact Integrated Huygens' Meta-Splitters

Y. Denizhan Sirmaci, Shuo Wang, Isabelle Staude, Yu Wang, and Chengjun Zou*

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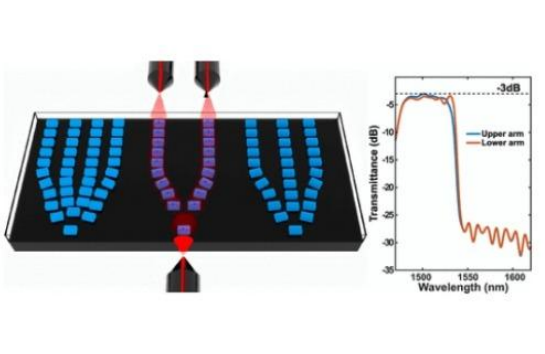

Ultracompact and Highly Sensitive Atomic Magnetometer Array via a Polarization Volume Grating-Based Waveguide Structure

Yuzhuo Pei, Chuang Wang, Jing Qin, Ye Tong, Ran Wei, Yishi Weng, Feng Liu, Wei Quan, Zhen Chai*, and Yuning Zhang*

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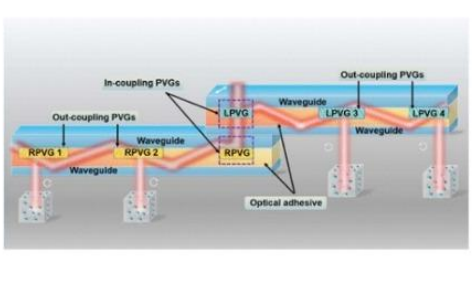

Dynamics of Pulsed-Laser Interaction with Janus Particles

Alireza Khoshzaban, Alessandro Magazzù, Maria Grazia Donato, Onofrio M. Maragò, Mehmet Burcin Unlu, M. Natali Cizmeciyan*, and Parviz Elahi*

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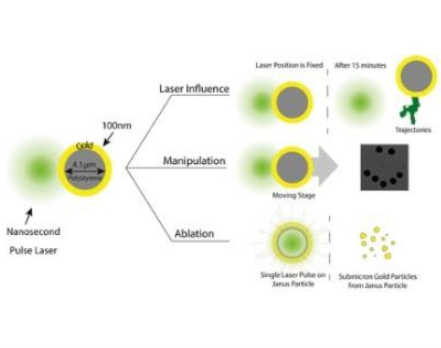

Optical Phase Conjugation of Self-Accelerating Waves

Tong Qi, Yi-Zhe Chen, Ding Yan, Xiang-Wei Wang, and Wei Gao*

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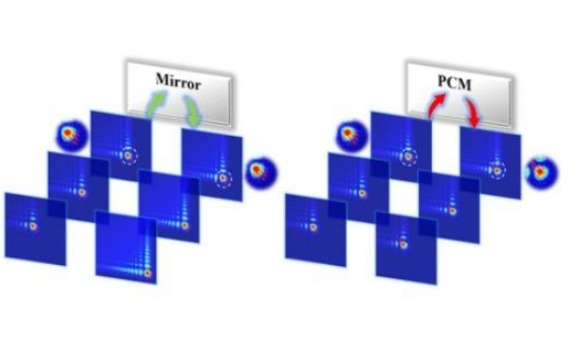

Inverse-Design-Assisted On-Chip GRIN Meta-Lens for Dual-Polarization Multimode Waveguide Crossing

Yingjie Liu*, Xin Qiao, Xingqi Wang, Rui Wu, and Zhigang Zang*

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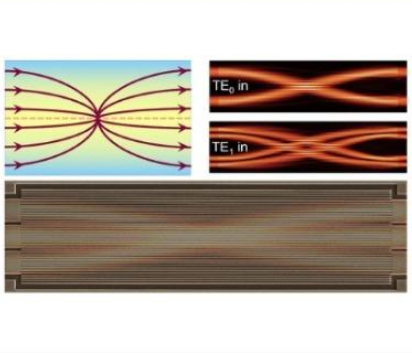

Bioinspired Motion Perception Using the Wavelength-Sensitive Nonvolatile MoTe$_2$ Homojunction

Haoxiang Tian, Yi Cui, Miao Zhang, Xinrui Chen, Gaofeng Rao, Mingjie Wang, Haonan Sun, Kehan Wu, Jianwen Huang*, and Xianfu Wang*

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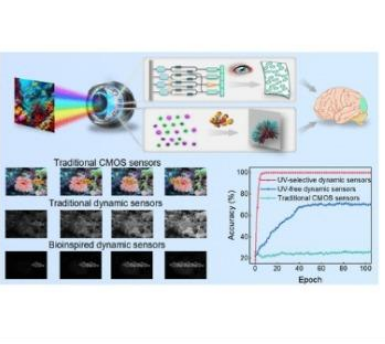

Sculpting Angular Tolerance to Reshape Mid-Infrared Nonlocal Guided Resonances

Jui-Nung Liu*, Wei-Chang Huang, Chi-Ting Weng, and Tzu-Hsun Huang

ACS Photonics 2025, 12, 4, 1972-1980 **(Article)** Open Access
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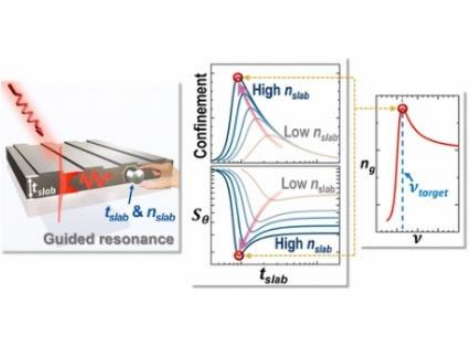

Ultracompact Spatial Speckle Reconstructive Spectrometer Based on a Waveguide Corner with Chaotic Reflection

Zhipeng Guo, Long Zhang, and Daoxin Dai*

ACS Photonics 2025, 12, 4, 1981-1988 **(Article)**
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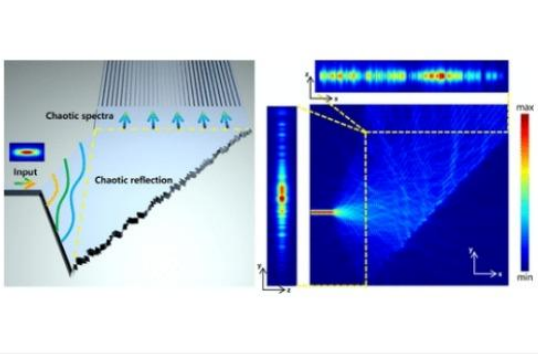

Dual-View Groups Super-multiview Display with Improved Information Density via a Large-Scale Metagrating Matrix

Jianyu Hua, Peiran Ge, Yang Li, Zhongwen Xia, Linsen Chen*, and Wen Qiao*

ACS Photonics 2025, 12, 4, 1989-1998 **(Article)** Open Access
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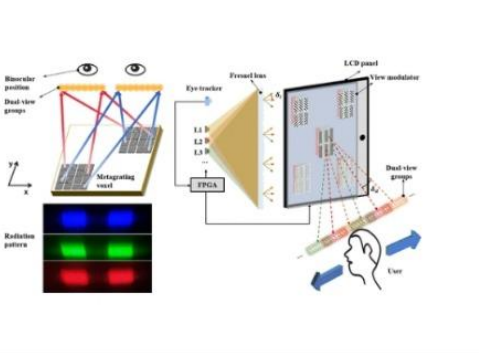

Efficiency Enhancement of InP-Based Quantum Dot Light-Emitting Diodes by Introducing a Phosphorescent-Dye Sensitizer in a Hole Transport Layer

Hui Wang, Lijia Zhao, Xin Bao, Hongwei Yu*, Guoqiang Zhang, Ting Wang, Xiangdong Meng, Shihao Liu, Xi Yuan*, and Wenfa Xie*

ACS Photonics 2025, 12, 4, 1999-2006 **(Article)**
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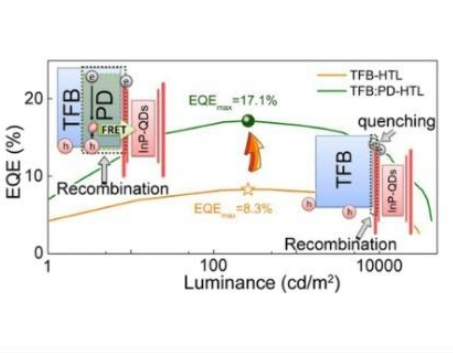

Robust Room-Temperature Polariton Condensation and Lasing in Scalable FAPbBr$_3$ Perovskite Microcavities

Mateusz Król*, Mitko Oldfield, Matthias Wurdack, Eliezer Estrecho, Gary Beane, Yihui Hou, Andrew G. Truscott, Agustin Schiffrin, and Elena A. Ostrovskaya

ACS Photonics 2025, 12, 4, 2007-2015 **(Article)**
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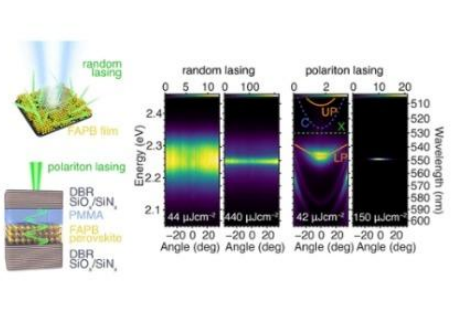

Optically Nonlinear Structures in Glass by Electron Lithography: Direct Writing

S. A. Scherbak, A. N. Terpitskiy*, I. V. Reshetov, I. V. Reduto, V. P. Kaasik, V. V. Zhurikhina, and A. A. Lipovskii

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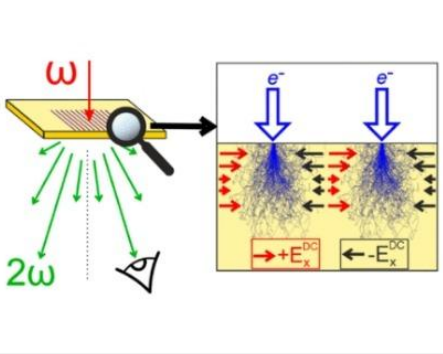

Long-Range Coherent Emission of Propagating Exciton–Polaritons from a Mach–Zehnder Interferometer

Jeffrey Horowitz, Bin Liu, Sritoma Paul, and Stephen R. Forrest*

ACS Photonics 2025, 12, 4, 2027-2033 **(Article)**
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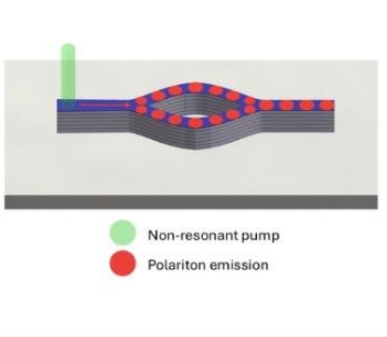

Enhancement of Terahertz Radiation from a Transversely Asymmetric Femtosecond Laser Filament

Jiayu Zhao*, Jiajun Yang, Xiaofeng Li, Feifan Zhu, Li Lao, Yan Peng*, and Yiming Zhu*

ACS Photonics 2025, 12, 4, 2034-2043 **(Article)**
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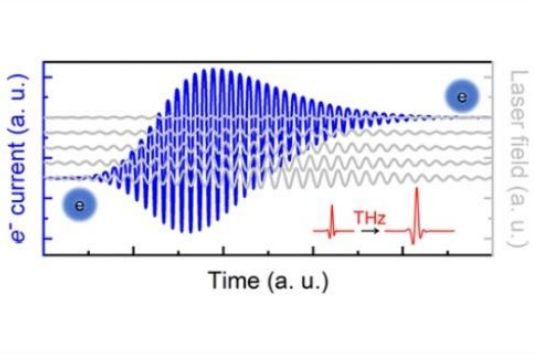

Suppression of Secondary Phases with Additive Engineering for the Spectrometer-Grade CsPbBr$_3$ Single Crystals

Yongning Liu, Minghao Cui, Xiaoxi Feng, Wenzhen Wang, Xudong Tang, Sirui Bao, Kunpeng Mou, Benlan Zeng, Fangxiong Tang, Jianing Hu, Huaxing Gou, Jinkun Liu, Yan Zhu*, and Run Xu*

ACS Photonics 2025, 12, 4, 2044-2052 **(Article)**
Publication Date (Web): April 2, 2025

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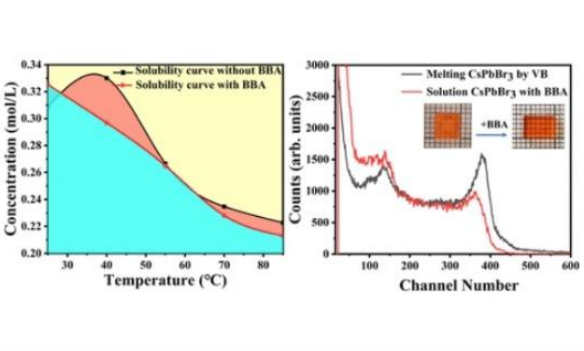

Efficient Finite Element Modeling of Light Scattering in Symmetric Structures: A Nondegenerate Case

Jingwei Wang, Lida Liu, Yuhao Jing, Zhongfei Xiong*, Dominik Kowal, and Yuntian Chen*

ACS Photonics 2025, 12, 4, 2053-2061 **(Article)**
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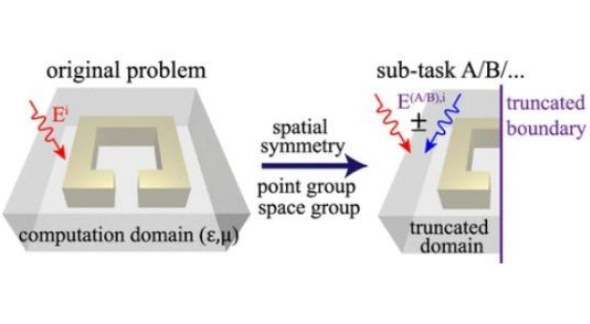

Large-Area Microtransfer-Printed Thin-Film Lithium Niobate-Silicon Nitride Microring Optical Filter with Nanosecond Tuning Speed

Jinwei Su, Wei Gao, Zekun Cui, Liangjun Lu*, Kan Wu, Jianping Chen, and Linjie Zhou

ACS Photonics 2025, 12, 4, 2062-2069 **(Article)**
Publication Date (Web): March 18, 2025

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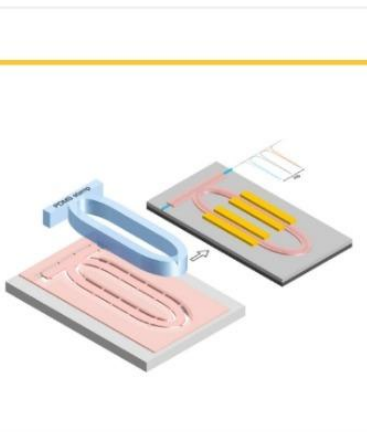

High-Spatial and Spectral Resolution Snapshot Spectral Imaging Based on Nearfield Coupled Metasurfaces

Yang Zhang, Lei Zhang, Yanlin Zhu, Yi Zhou, Gaofeng Liang, Zhongquan Wen, Jin Xiang*, Jingdong Chen*, and Gang Chen

ACS Photonics 2025, 12, 4, 2070-2078 **(Article)**
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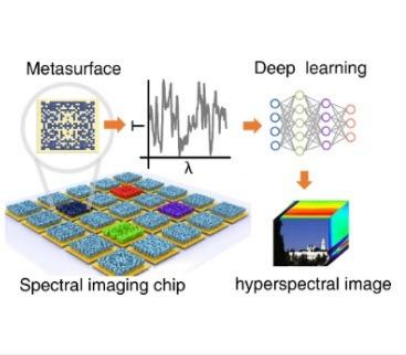

Anisotropic Excitonic Photoluminescence Observed on Artificial Bilayer MoS$_2$ with Heterostrain

Xiaoan Jiang, Xiaoxu Zhao, Weitao Su*, Fei Chen, Senjiang Yu, Yijie Zeng, Hong-Wei Lu, and Peiqing Chen

ACS Photonics 2025, 12, 4, 2079-2087 **(Article)**
Publication Date (Web): March 27, 2025

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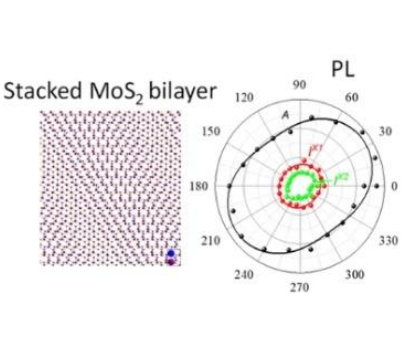

Giant Photoconductivity of Annealed CdSe/CdS Nanoplatelet Films

Shamil R. Saitov*, Alexander M. Smirnov, Bedil M. Saidzhonov, Roman B. Vasiliev, Alexey E. Aleksandrov, Alexey R. Tameev, Gleb O. Snigirev, and Vladimir N. Mantsevich

ACS Photonics 2025, 12, 4, 2088-2096 **(Article)**
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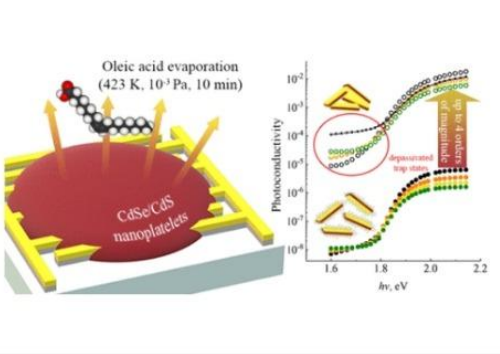

Attosecond Transient Grating Spectroscopy with Near-Infrared Grating Pulses and an Extreme Ultraviolet Diffracted Probe

Rafael Quintero-Bermudez*, Lauren Drescher, Vincent Eggers, Kevin Gulu Xiong, and Stephen R. Leone*

ACS Photonics 2025, 12, 4, 2097-2105 **(Article)** Open Access
Publication Date (Web): March 12, 2025

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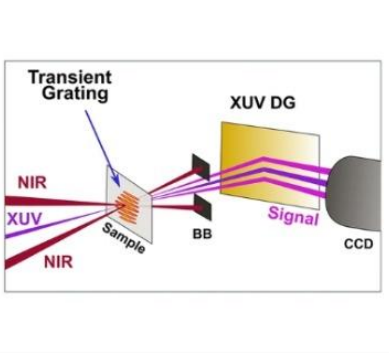

Exploring the Transverse Thermoelectric Effect of 4H-SiC Single Crystal for the Applications of High-Energy Infrared Laser Detection

Yahui Huang, Jianyu Yang, Yong Wang*, and Bo Dai*

ACS Photonics 2025, 12, 4, 2106-2111 **(Article)**
Publication Date (Web): March 24, 2025

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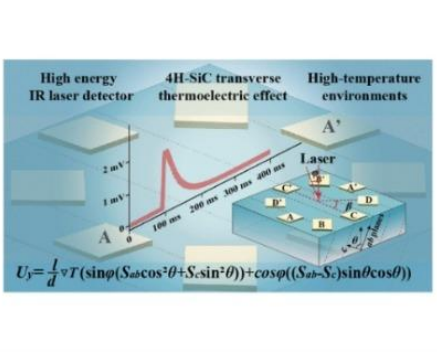

WSe$_2$/β-Ga$_2$O$_3$ p–n Heterojunction-Based Normally Off Phototransistors for Self-Powered UV-C Detection

Soobeen Lee, Jeongmin Kim, Woong Choi, and Jihyun Kim*

ACS Photonics 2025, 12, 4, 2112-2119 **(Article)**
Publication Date (Web): March 24, 2025

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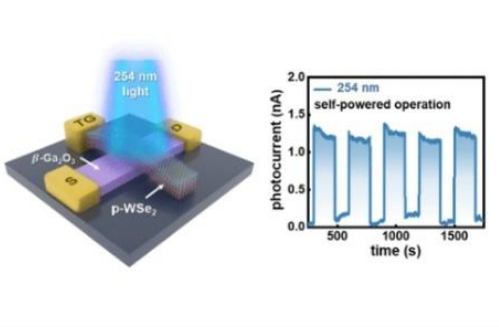

GaN-Based Laser Diode with a Trapezoidal EBL and an Unintentionally Doped Layer Reaching 7.8 GHz Modulation Bandwidth

Haolin Jia, Junhui Hu, Zhenqian Gu, Zhen Yang, Dehuai Fan, Lulu Zha, Jiabin Wu, Chenyu Guo, Yingjun Zhou, Jianyang Shi, Ziwei Li, Junwen Zhang, Nan Chi, and Chao Shen*

ACS Photonics 2025, 12, 4, 2120-2127 **(Article)**
Publication Date (Web): April 1, 2025

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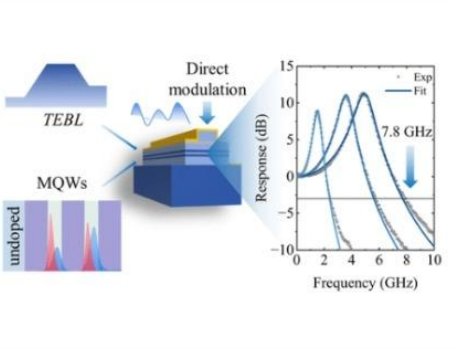

Waveguide-Integrated MoS$_2$ Field-Effect Transistors on Thin-Film Lithium Niobate with High Responsivity and Ultra-Low Dark Current

Fan Yang, Youtian Hu, Jiale Ou, Qingyun Li, Xiangxing Xie, Huangpu Han*, Changlong Cai, Shuangchen Ruan, and Bingxi Xiang*

ACS Photonics 2025, 12, 4, 2128-2136 **(Article)**
Publication Date (Web): April 4, 2025

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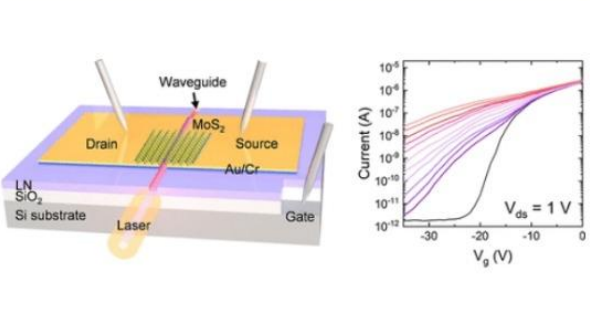

Femtosecond Optical-Field-Driven Currents in Few-Nanometer-Size Gaps with Hot Electron Injection into Metallic Leads

Andrei G. Borisov*, Boyang Ma, Mario Zapata-Herrera, Antton Babaze, Michael Krüger, and Javier Aizpurua

ACS Photonics 2025, 12, 4, 2137-2150 **(Article)**
Publication Date (Web): April 1, 2025

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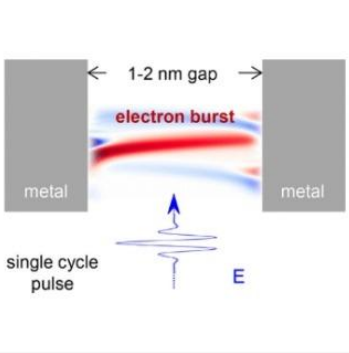

Degree of Time-Reversal and Dynamical Symmetry Breaking in Electromagnetic Fields and Its Connection to Floquet Engineering

Ofer Neufeld*

ACS Photonics 2025, 12, 4, 2151-2159 **(Article)** Open Access
Publication Date (Web): March 10, 2025

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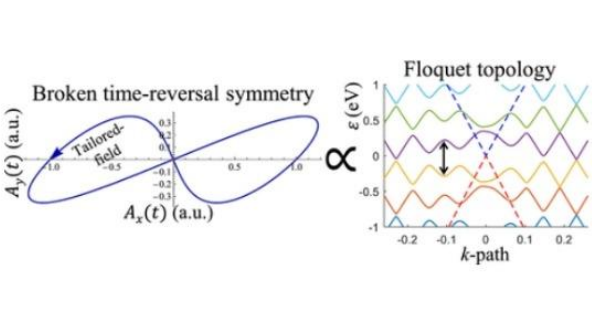

Few-Mode Superposition for High-Efficiency Generation of Tailored Partially Coherent Light

Zhuoyi Wang, Xingyuan Lu*, Hao Zhang, Junan Zhu, Xiaotan Lu, Yifeng Shao, H. Paul Urbach, Qiwen Zhan, Yangjian Cai, and Chengliang Zhao*

ACS Photonics 2025, 12, 4, 2160-2168 **(Article)**
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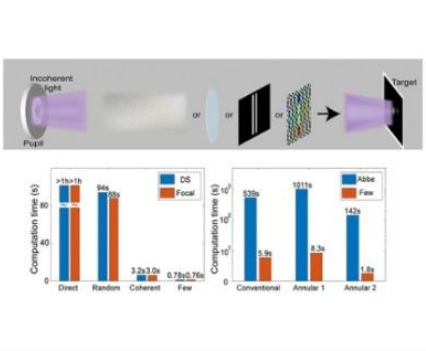

Retina-Inspired Dual-Mode Photodetector with Spectral-Tunable Memory Switching for Neuromorphic Visual Systems

Chao Han, Jiayue Han, Lei Guo, Xingwei Han, Meiyu He, Yurong Zhang, Zhiming Wu, He Yu, Jun Gou, and Jun Wang*

ACS Photonics 2025, 12, 4, 2169-2177 **(Article)**
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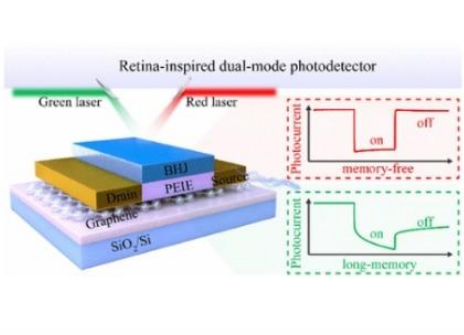

Enhanced Performance of Single-Photon Emitter Hosted in Hexagonal Boron Nitride via Two-Photon Excitation

Qian Xu, Bo Gao*, Liang Zhao, Gang Lv, Jianqun Yang, and Xingji Li*

ACS Photonics 2025, 12, 4, 2178-2186 **(Article)**
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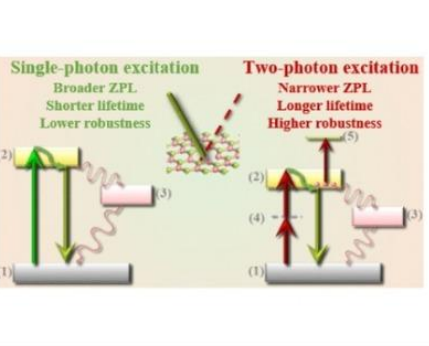

Detecting Hot Electron-Induced Local Damage Using THz Near-Field Optical Microscopy

Weijie Deng, Yinan Wang, Xiaoyan Zhu, Rui Xin, Tianxin Li*, Qianchun Weng*, and Wei Lu*

ACS Photonics 2025, 12, 4, 2187-2192 **(Article)**
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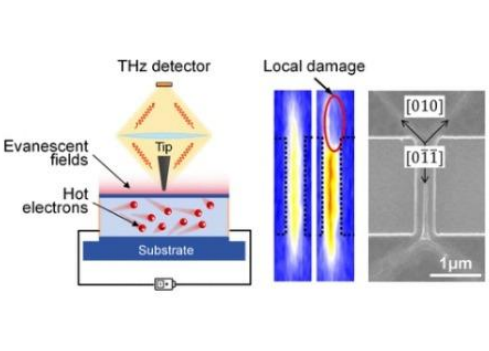

Enhanced Delayed Fluorescence in Nonlocal Metasurfaces: The Role of Electronic Strong Coupling

Yu-Chen Wei*, Chih-Hsing Wang, Konstantinos S. Daskalakis, Pi-Tai Chou, Shunsuke Murai, and Jaime Gómez Rivas*

ACS Photonics 2025, 12, 4, 2193-2202 **(Article)** Open Access
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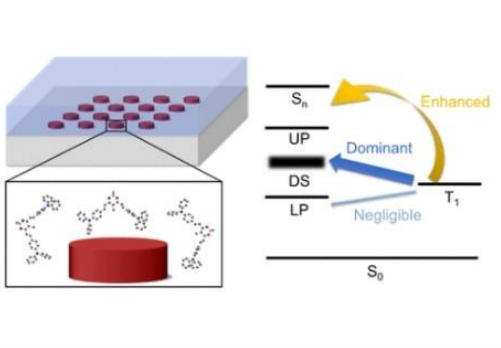

Exploring Phase Topology and Group Index Modifications of THz Vibro-Polaritons in Metasurfaces

Jie Ji*, Amir Mousawi, Joost Scheers, Alaa Jabbar Jumaah, Shihab Al-Daffaie, and Jaime Gómez Rivas*

ACS Photonics 2025, 12, 4, 2203-2211 **(Article)** Open Access
Publication Date (Web): April 4, 2025

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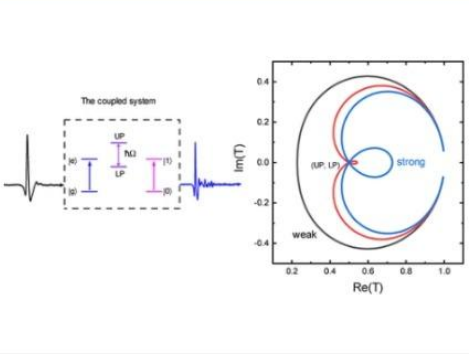

Optical Tweezers with Optical Vortex Based on Deep Learning

Zhe Shen* and Ning Liu

ACS Photonics 2025, 12, 4, 2212-2218 **(Article)**
Publication Date (Web): March 25, 2025

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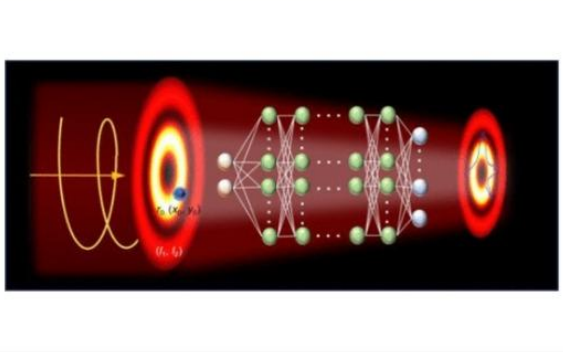

Quenching Strong-Field Rescattering of Photoemitted Electrons from Metallic Nanotapers by Using Moderate Bias Fields

Germann Hergert*, Rasmus Lampe, and Christoph Lienau*

ACS Photonics 2025, 12, 4, 2219-2225 **(Article)** Open Access
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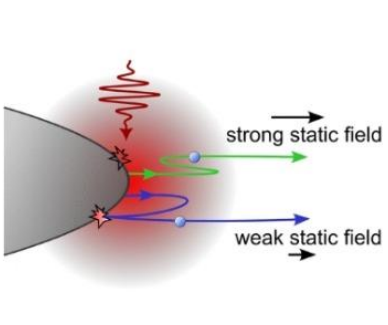

Broadband Bidirectional Thermal Emission Supported by Localized Surface Plasmons and Magnetic Polaritons

Cunhai Wang*, Tao Chen, Hao Chen, Jingchong Liu*, and Hong-Liang Yi*

ACS Photonics 2025, 12, 4, 2226-2232 **(Article)**
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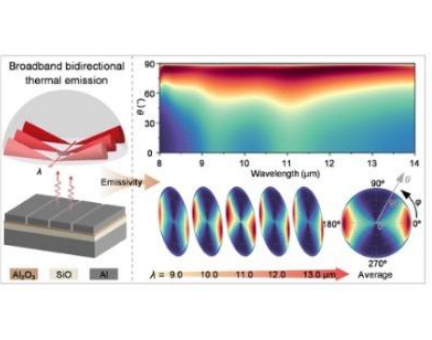

Multiplexed Near-IR Detection of Single-Molecule Fluorescence Fluctuations Using a Single Superconducting Nanowire Single-Photon Detector

Abhilash Kulkarni, Niusha Bagheri, and Jerker Widengren*

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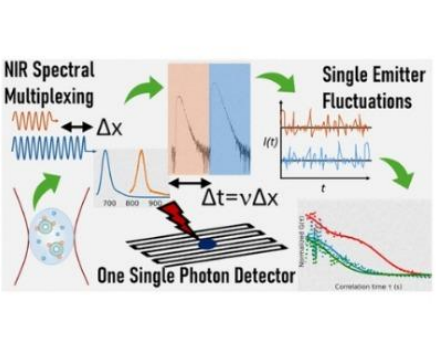

Unified Simulation Platform for Optical Tweezers and Optofluidic Force Induction

Ulrich Hohenester*, Marko Šimić, Raphael Hauer, Lorenz Huber, and Christian Hill

ACS Photonics 2025, 12, 4, 2242-2251 **(Article)** Open Access
Publication Date (Web): March 22, 2025

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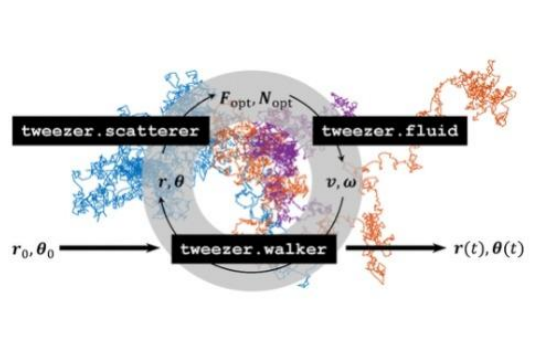

High-Quality Plasmonic Lasing with Topologically Trivial or Nontrivial Polarization

Mengyuan Song, Xinyu Gao, Chenghao Bai, Jun Guan*, and Xianyu Ao*

ACS Photonics 2025, 12, 4, 2252-2259 **(Article)**
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