Nano Letters

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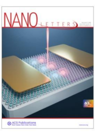

Decade 2020 Year 2026 Issue November 11, - Volume 26, Issue 44, Pages 15203 - 15513

Volume 26, Issue 44

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About the Cover

Dipolar excitons create quantum wires at the interface of laterally stacked transition metal dichalcogenides, where electrostatic gates provide control over the exciton wavefunction. These engineered one-dimensional excitonic states offer a new platform for exploring collective quantum phenomena.

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Mini-Reviews

Subscribed

Strategy and Mechanism of Boosting Ion Penetration in Organic Electrochemical Transistors

Dianjue Liu; Zhongyou Lu; Mengfu Chen; Lizhen Huang; Lifeng Chi

Nano Lett. (2026) 26 (44): 15203–15214.

https://doi.org/10.1021/acs.nanolett.6c03752

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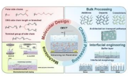
Molecular Design
Channel Processing
Mechanisms
Bulk Processing
Interfacial engineering
OECT

Letters

Open Access

Dipolar Excitonic Quantum Wires at Atomically Sharp Lateral Interfaces

Elie Vandoolaeghe; Francesco Fortuna; Suman Kumar Chakraborty; Biswajeet Nayak; Takashi Taniguchi; Kenji Watanabe; Prasana K. Sahoo; Thibault Chervy; Puneet A. Murthy

Nano Lett. (2026) 26 (44): 15215–15222.

https://doi.org/10.1021/acs.nanolett.6c02624

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Shear Assisted Diamond Formation in Cold-Compressed HOPG

Brock M. Nicholas; Alan G. Salek; Ines F. Vaz; Hendrik Heimes; Xingshuo Huang; Jessica Wierbik; Samuel R. B. Case; Jodie E. Bradby; Dougal G. McCulloch

Nano Lett. (2026) 26 (44): 15223–15230.

https://doi.org/10.1021/acs.nanolett.6c02881

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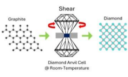
Shear
Graphite
Diamond
Diamond Anvil Cell
@ Room-Temperature

Subscribed

Molecularly Addressable Nanoparticle-on-Mirror Cavity Arrays via DNA Origami-Mediated Template Assembly

Soyeon Kim; Jaewon Lee; Soyoung Lee; Dooheon Kim; Jangwon Kim; Hoyoung Lee; Minsang Kim; Kyeongsoo Kim; Seungwoo Lee

Nano Lett. (2026) 26 (44): 15231–15239.

https://doi.org/10.1021/acs.nanolett.6c02892

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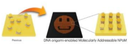
Previous
DNA origami-enabled Molecularly Addressable NPoM

Open Access

Nanoscale Mapping of Internal Magnetization Dynamics Reveals How Disorder Shapes Heat Generation in Magnetic Particle Hyperthermia

Elizabeth M. Jefremovas; Pauline Rooms; Álvaro Gallo-Córdova; María P. Morales; Frank Wiekhorst; Andreas Michels; Jonathan Leliaert

Nano Lett. (2026) 26 (44): 15240–15249.

https://doi.org/10.1021/acs.nanolett.6c02907

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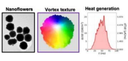

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SecAntiGami: A Secondary-Antibody-Inspired RNA Origami for Qualitative Aptamer Validation

Linus S. Frey; William Verstraeten; Mai P. Tran; Dana Venkert; Luca Monari; Cody Geary; Kerstin Göpfrich

Nano Lett. (2026) 26 (44): 15250–15258.

https://doi.org/10.1021/acs.nanolett.6c03022

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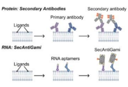
Protein: Secondary Antibodies
Ligands
Primary antibody
Secondary antibody
RNA: SecAntiGami
Ligands
RNA aptamers
SecAntiGami

Subscribed

Balancing Fast Li-Ion Transport Kinetics and Mechanical Strength in PEO-Based Composite Solid Electrolytes through Minimal Dinitrile Incorporation

Yuhang Li; Likun Chen; Longxiang Yu; Chenjie Lou; Yubin Li; Guanyou Xiao; Junwei Liang; Zhuo Han; Yuetao Ma; Zhihao Lei; Xudong Li; Ming Liu

Nano Lett. (2026) 26 (44): 15259–15267.

https://doi.org/10.1021/acs.nanolett.6c03510

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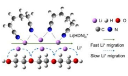
Li
H
O
C
N
Li(HDN)x+
Li+
Fast Li+ migration
Slow Li+ migration

Subscribed

Record-Breaking Elemental Superconductivity in Tetralayer Kagome Borophene

Yingnan Liu; Yan Liu; Renyu Duan; Menghui Wang; Meiling Xu; Hanyu Liu; Shoutao Zhang

Nano Lett. (2026) 26 (44): 15268–15273.

https://doi.org/10.1021/acs.nanolett.6c03566

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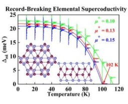

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Nonlinear Hall Effect in a Semiconductor Heterostructure with Rashba and Dresselhaus Effects

Jeong Ung Ahn; Junyeong Choi; Minseong Kwon; Won-Young Choi; Ki Hyuk Han; Cheol Jun Kim; Chaun Jang; Dong-Soo Han; OukJae Lee; Byoung-Chul Min; Kyoung-Whan Kim; Hyun Cheol Koo

Nano Lett. (2026) 26 (44): 15274–15281.

https://doi.org/10.1021/acs.nanolett.6c03601

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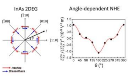

Subscribed

Stereochemical Optimization Boosts the Chemotherapeutic Efficacy of Isomeric Bile Salt-Aquated Cisplatin Nanocomplexes

Jiayao Wang; Yixin Sun; Qianhui Jin; Baoyuan Zhang; Shunfeng Wang; Xiaoning Su; Zuo Zhang; Lu Li; Qinglong Yan; Kexia Zhang; Chutong Tian; Bingjun Sun

Nano Lett. (2026) 26 (44): 15282–15291.

https://doi.org/10.1021/acs.nanolett.6c03758

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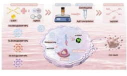

Subscribed

Minerals Modulate Lithium Ion Sieve for Efficient Lithium Extraction

Cheng Zhang; Runqin Gao; Kun Yu; Qian Wang; Xiongbo Dong; Huaming Yang

Nano Lett. (2026) 26 (44): 15292–15302.

https://doi.org/10.1021/acs.nanolett.6c03656

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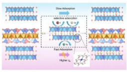
Slow Adsorption
selective adsorption
Fast Adsorption

Subscribed

Tailored Dissipation for Directional Transport in Plasmonic Ratchets

Anna Sidorenko; Jan Mathis Giesen; Sebastian Eggert; Stefan Linden

Nano Lett. (2026) 26 (44): 15303–15309.

https://doi.org/10.1021/acs.nanolett.6c03773

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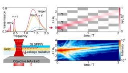

Subscribed

High Refractive Index Silver Nanoparticle Metamaterials Approaching Fundamental Bounds

Reed E. Worland; Francesco Monticone; Owen D. Miller; Brandi M. Cossairt

Nano Lett. (2026) 26 (44): 15310–15317.

https://doi.org/10.1021/acs.nanolett.6c03845

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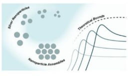
Silver Nanoparticles
Theoretical Bounds
Nanoparticle Assemblies

Subscribed

Quantifying and Managing the Structural Lifetimes of Nanocrystalline Model Catalysts in CO

Lei Ying; Qingli Tang; Beien Zhu; Yi Gao

Nano Lett. (2026) 26 (44): 15318–15325.

https://doi.org/10.1021/acs.nanolett.6c03871

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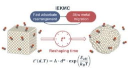
iEKMC
Fast adsorbate rearrangement
Slow metal migration
Reshaping time
$t^*(d,T) = A \cdot d^{\alpha} \cdot \exp\left(\frac{E_{eff}}{k_B T}\right)$

Subscribed

Helical Photonic Confinement of Narrowband-Emissive Carbon Quantum Dots Enables Amplified and Stimulus-Responsive Circularly Polarized Luminescence

Wendi Qin; Jinyang Li; Jinsui Li; Chenhao Li; Kele Liao; Xun Zhang; Fanglong Yuan

Nano Lett. (2026) 26 (44): 15326–15333.

https://doi.org/10.1021/acs.nanolett.6c03876

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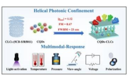
Helical Photonic Confinement
Multimodal-Response
CQDs
CQDs-CLCs
Light-activation
Temperature
Pressure
View-angle
Voltage
Polarization

Subscribed

Flexible Microlaser Emitter for Mechanical Sensing and Pulse Mapping

Ningyuan Nie; Zhiyi Yuan; Tian Zhou; Guocheng Fang; Bowen Fu; Xiyu Sun; Po-Hao Tseng; Yu-Cheng Chen

Nano Lett. (2026) 26 (44): 15334–15342.

https://doi.org/10.1021/acs.nanolett.6c03896

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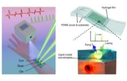
Hydrogel film
Pump
Lasing
Cun
Guan
Chi

Subscribed

Super-Toughness Self-Healing MOF-Based Composite Solid Electrolyte with Reaction-Transport Coupling Regulates Transportation of Ions and Polysulfides in High-Performance Solid-State Li–S Batteries

Zhipeng Su; Bo Peng; Zhihong Yao; Feng Zou; Runwei Mo

Nano Lett. (2026) 26 (44): 15343–15352.

https://doi.org/10.1021/acs.nanolett.6c04006

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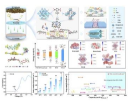

Subscribed

Ultralow-Threshold NIR AgAuSe Colloidal Quantum Dot Laser

Ziyan Zhang; Yuhua Chen; Hongchao Yang; Yejun Zhang; Jiang Jiang; Yuliang Zhao; Xingwang Zhang; Qiangbin Wang

Nano Lett. (2026) 26 (44): 15353–15361.

https://doi.org/10.1021/acs.nanolett.6c04105

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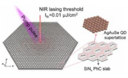
NIR lasing threshold
Ith=0.01 μJ/cm2
Pump pulse
AgAuSe QD superlattice
SiNx PhC slab

Subscribed

Evidence of Polarons and Their Ultrafast Optical Undressing in a Topological Semimetal

Lei Hou; Yunkun Yang; Heming Xia; Jun Yin; Pengcheng Ji; Yujun Zhang; Wen Xu; Faxian Xiu; Lan Ding

Nano Lett. (2026) 26 (44): 15362–15367.

https://doi.org/10.1021/acs.nanolett.6c04108

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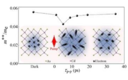

Subscribed

Light-Triggered Self-Growth of 3D Photonic Structures with Vertical Helical-Pitch Gradients Engineering

Jiemin Qiu; Jie Li; Rui Xiong

Nano Lett. (2026) 26 (44): 15368–15377.

https://doi.org/10.1021/acs.nanolett.6c04143

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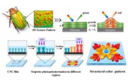
3D Texture Pattern
green
red
CNC film
Stepwise photopolymerization in different regions
Structural-color pattern

Subscribed

Oriented Spiral Growth of Two-Dimensional Materials

Peiyu Qiao; Wentao Zhang; Ziyu Wang; Zhongshi Zhang; Xuanze Li; Yifan Wang; Lifeng Tian; Pei Liu; Chun Zhao

Nano Lett. (2026) 26 (44): 15378–15385.

https://doi.org/10.1021/acs.nanolett.6c04182

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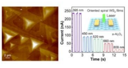

Subscribed

Band-Engineering $W_{18}O_{49}$ with Cu Single Atoms Enables Efficient Photo-Induction of Oxygen Radicals for Highly Sensitive Room-Temperature NO_2 Detection

Nan Li; Haobing Zhang; Xianbin Wei; Bingxian Chu; Meng Danny Gu; Wen-Hua Li; Qiang Xu

Nano Lett. (2026) 26 (44): 15386–15394.

https://doi.org/10.1021/acs.nanolett.6c04218

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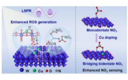
LSPR
Enhanced ROS generation
Monodentate NO3
Cu doping
Bridging bidentate NO3
Enhanced NO2 sensing
W
Cu
O
N

Subscribed

Dynamic Charge Gradients from Interfacial Electron Transfer Enable Self-Powered Gate-Controlled All-Metal-Nanoparticle Neuromorphic Systems

Xing Zhao; Hongbo Zhang; Jiahui Guo; Yuchun Zhang; Zhuhua Zhang; Yong Yan

Nano Lett. (2026) 26 (44): 15395–15404.

https://doi.org/10.1021/acs.nanolett.6c04269

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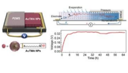

Subscribed

ROS-Responsive Selenocysteine-Releasing Nanozyme for Targeted Ferroptosis Suppression and Pancreatic β-Cell Protection in Type 2 Diabetes

Juncai Zhang; Yuqi Li; Yingying Xie; Runqi Wang; Liqiang Lai; Bin Guo; Xin Tian

Nano Lett. (2026) 26 (44): 15405–15415.

https://doi.org/10.1021/acs.nanolett.6c04272

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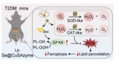
T2DM mice
SOD-like
CAT-like
Sec
GPX4
ROS
PL-OH
PL-OOH
i.p.
Se@CuSAzyme
Ferroptosis
Lipid peroxidation

Subscribed

Long-Range Single-Molecule Transport and Assembly at Liquid Nitrogen Temperatures

Tairan Yang; Zhiwen Zhu; Cunzhe Lou; Juan Xiang; Qi Huang; Yizhang Li; Jie Li; Qiang Sun

Nano Lett. (2026) 26 (44): 15416–15423.

https://doi.org/10.1021/acs.nanolett.6c04287

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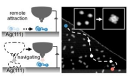
remote attraction
Ag(111)
navigating
Ag(111)

Open Access

Efficient Carrier Multiplication Beyond Mo- and W-Based Transition Metal Dichalcogenides: Multilayer $HfSe_2$ and $ReSe_2$

Goutam Ghosh; Stevie Furxhiu; Pieter Schiettecatte; Peter Schall; Pieter Geiregat; Laurens D. A. Siebbeles

Nano Lett. (2026) 26 (44): 15424–15431.

https://doi.org/10.1021/acs.nanolett.6c04321

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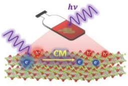

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Voltage–Current-Emission Framework of Time-Resolved Electroluminescence

Hui Bao; Longjia Wu; Yanan Guo; Jianchang Yan; Ying Wang; Haizheng Zhong

Nano Lett. (2026) 26 (44): 15432–15439.

https://doi.org/10.1021/acs.nanolett.6c04327

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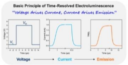
Basic Principle of Time-Resolved Electroluminescence
"Voltage drives Current, Current drives Emission"
Voltage
Current
Emission

Open Access

Finite-Depth Interfacial Coupling in Metal/Topological Insulator van der Waals Heterostructures

Yin-Song Liao; Hsin-Hsien Chan; Ruei-Yu Wang; Han-Wei Tsai; Hsun-Ting Hsieh; Cheng-Maw Cheng; Jyh-Pin Chou; Meng-Kai Lin

Nano Lett. (2026) 26 (44): 15440–15446.

https://doi.org/10.1021/acs.nanolett.6c04373

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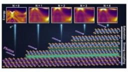

Subscribed

Bioinspired Self-Powered Polarization-Adaptive Visual Sensors Enabled by PbS Quantum-Dots/Oriented $ReSe_2$ Heterojunctions

Yongxing Zhu; Haifeng Hu; Ye Tao; Peipei Chen; Jingyao Bian; Ya Lin; Xiaoning Zhao; Zhongqiang Wang; Weiguo Chu; Haiyang Xu; Yichun Liu

Nano Lett. (2026) 26 (44): 15447–15456.

https://doi.org/10.1021/acs.nanolett.6c04436

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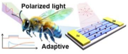
Polarized light
Adaptive

Subscribed

Exciton Recycling as a Strategy for Controlling Energy Transfer in Doped Perovskite Nanocrystals

Subham Das; Naresh Aggarwal; K. V. Adarsh; Ranjani Viswanatha

Nano Lett. (2026) 26 (44): 15457–15465.

https://doi.org/10.1021/acs.nanolett.6c04479

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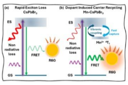
(a) Rapid Exciton Loss
CsPbBr3
(b) Dopant Induced Carrier Recycling
Mn-CsPbBr3
ES
GS
Non radiative loss
FRET
R6G

Subscribed

Hydrogen-Bonded Organic Framework-Confined Carbon Dots toward Efficient Red Room-Temperature Phosphorescence via Resonance Energy Transfer

Zhenti Xu; Wenjie Xu; Jiurong Li; Wenxuan Sun; Xiao Gong

Nano Lett. (2026) 26 (44): 15466–15474.

https://doi.org/10.1021/acs.nanolett.6c04640

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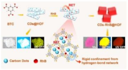
BTC
CDs@HOF
RET
CDs-RhB@HOF
Carbon Dots
RhB
Rigid confinement from hydrogen-bond network

Subscribed

A Multicolor Electrochromic Device Enabled by Shared-Zn Energy Routing for Self-Powered Wearable Displays

Yaowu Li; Zhenyong Wang; Haifeng Tu; Jian Chen; Peiyan Sun; Min Li; Wenjun Li; Shan Cong; Zhigang Zhao

Nano Lett. (2026) 26 (44): 15475–15482.

https://doi.org/10.1021/acs.nanolett.6c04676

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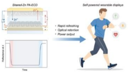
Shared-Zn PA-ECD
Self-powered wearable displays
Rapid refreshing
Optical retention
Power output

Open Access

Single-Layer Diverse Chiral Metasurfaces Driven by Generative AI

Masanobu Iwanaga; Mihir Kumar Sahoo; Chun-Hao Chiang; Ya-Lun Ho; Keisuke Watanabe

Nano Lett. (2026) 26 (44): 15483–15489.

https://doi.org/10.1021/acs.nanolett.6c04776

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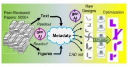
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Fernando Rubio-Marcos; Jonathan Ordoñez-Pimentel; Adolfo Del Campo; Michel Venet; José E. García

Nano Lett. (2026) 26 (44): 15490–15496.

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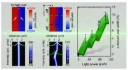

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Nano Lett. (2026) 26 (44): 15497–15506.

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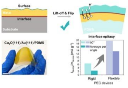
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Yu Dong; Mao Yoshii; Ziqian Wang; Fehmi S. Yasin; Sota Kitamura; Feng Qin; Shingo Toyoda; Takahiro Morimoto; Xiuzhen Yu; Naoki Ogawa; Yoshihiro Iwasa; Toshiya Ideue

Nano Lett. (2026) 26 (44): 15507–15513.

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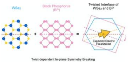
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