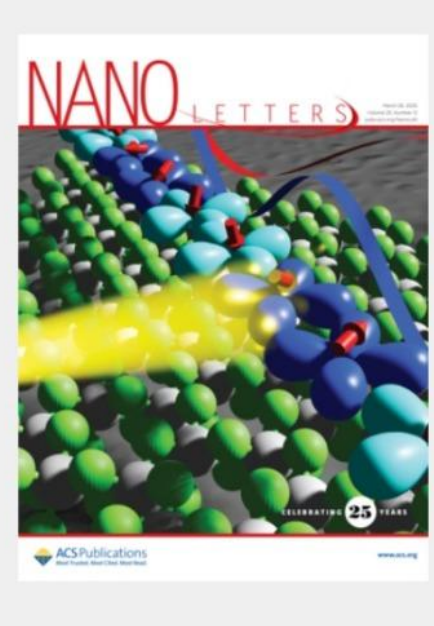

March 26, 2025
Volume 25, Issue 12
Pages 4645-5062

About the Cover:

A multicomponent magneto-orbital order state in monolayer VCl$_3$ is revealed by combining density functional theory with a low-energy spin–orbital model. Hybrid quantum excitations called magneto-orbitons are discovered. **View the article.**

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LETTERS

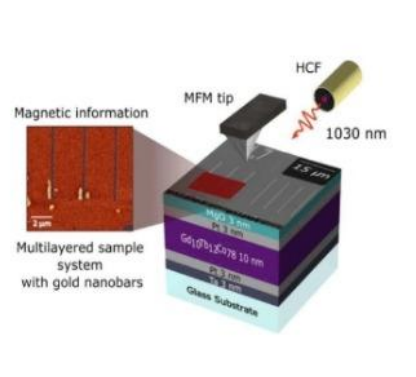
Subwavelength Localized All-Optical Helicity-Independent Magnetic Switching Using Plasmonic Gold Nanostructures

Themistoklis Sidiropoulos*, Puloma Singh, Tino Noll, Michael Schneider, Dieter Engel, Denny Sommer, Felix Steinbach, Ingo Will, Bastian Pfau, Clemens von Korff Schmising, and Stefan Eisebitt

Nano Letters 2025, 25, 12, 4645-4651 **(Letter)** Subscribed
Publication Date (Web): March 18, 2025

Abstract Full text PDF

ABSTRACT


Magnetic information
MFM tip
HCF
Multilayered sample system with gold nanobars
Glass Substrate

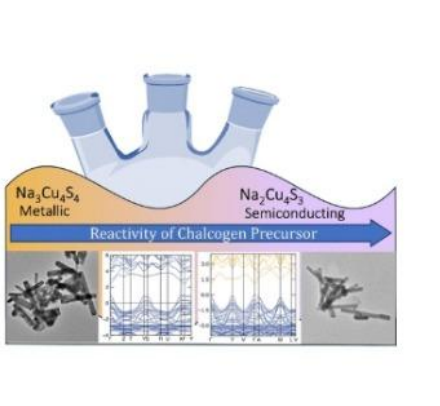
Ligand-Assisted Colloidal Synthesis of Alkali Metal-Based Ternary Chalcogenide: Nanostructuring and Phase Control in Na–Cu–S System

Hannah McKeever, Nilotpal Kapuria, Adair Nicolson, Suvodeep Sen, David Scanlon, Kevin M. Ryan, and Shalini Singh*

Nano Letters 2025, 25, 12, 4652-4658 **(Letter)** Open Access
Publication Date (Web): March 12, 2025

Abstract Full text PDF

ABSTRACT


Na$_3$Cu$_4$S$_4$ Metallic
Na$_2$Cu$_4$S$_3$ Semiconductor
Reactivity of Chalcogen Precursor

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Broadband Light Extraction from Near-Surface NV Centers Using Crystalline-Silicon Antennas

Minjeong Kim, Maryam Zahedian, Wenxin Wu, Chengyu Fang, Zhaoning Yu, Raymond A. Wambold, Ricardo Vidrio, Yuhan Tong, Shenwei Yin, David A. Czaplewski, Jennifer T. Choy*, and Mikhail A. Kats*

Nano Letters 2025, 25, 12, 4659-4666 **(Letter)** Subscribed
Publication Date (Web): March 17, 2025

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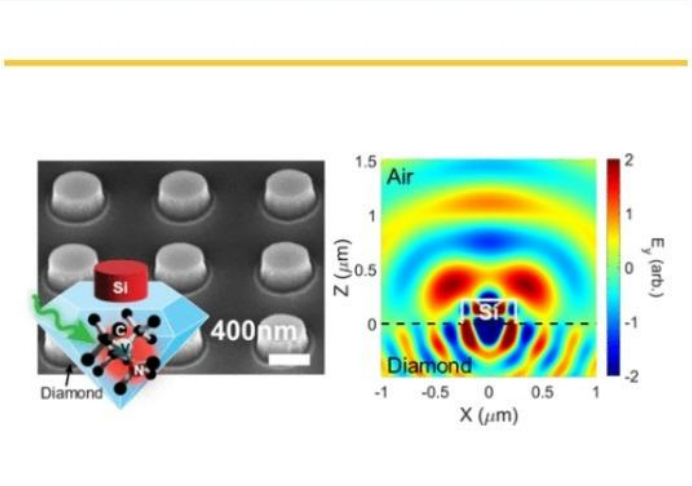
ABSTRACT



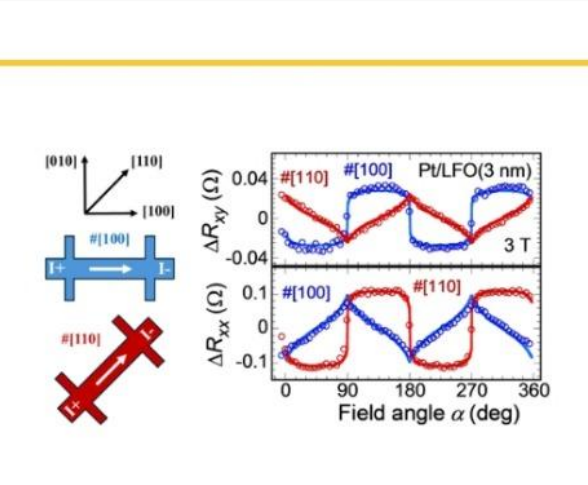
Robust Biaxial Anisotropy and Switchable Néel Vectors in LaFeO$_3$ Epitaxial Films

Joseph Lanier, Justin Michel, Jose Flores, and Fengyuan Yang*

Nano Letters 2025, 25, 12, 4667-4672 **(Letter)** Open Access
Publication Date (Web): March 13, 2025

Abstract Full text PDF

ABSTRACT



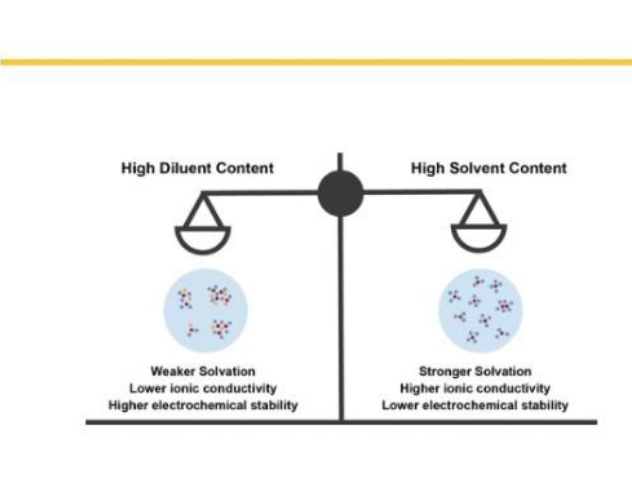
Correlating Solvation Free Energy to Electrolyte Properties for Lithium Metal Batteries

Sang Cheol Kim, Jou-An Pan, Aditya Shah, Yuelang Chen, Hyunchang Park, Yufei Yang, Wenbo Zhang, Louisa C. Greenburg, Tomi Sogade, Alex Chen, Jian Qin*, Zhenan Bao*, and Yi Cui*

Nano Letters 2025, 25, 12, 4673-4680 **(Letter)** Subscribed
Publication Date (Web): March 16, 2025

Abstract Full text PDF

ABSTRACT


High Diluent Content
High Solvent Content
Weaker Solvation
Lower ionic conductivity
Higher electrochemical stability
Stronger Solvation
Higher ionic conductivity
Lower electrochemical stability

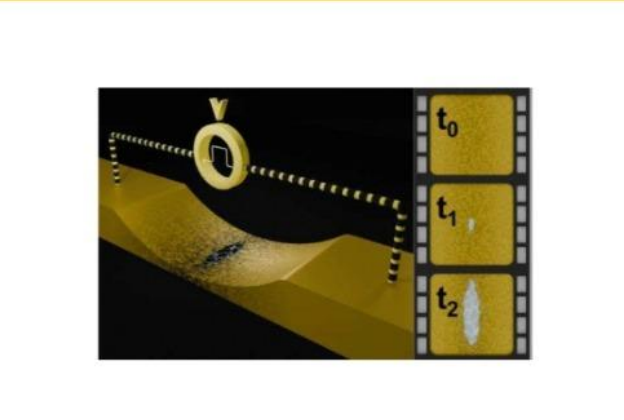
Investigating the Rapid Failure of Focused Ion Beam Deposited Electrical Contacts: An In-Situ and Ultrafast Transmission Electron Microscopy Approach

Suman Kumari, Mason Freund, and Volkan Ortalan*

Nano Letters 2025, 25, 12, 4681-4688 **(Letter)** Subscribed
Publication Date (Web): March 15, 2025

Abstract Full text PDF

ABSTRACT



Anisotropic Response of Defect Bound States to the Magnetic Field in Epitaxial FeSn Films

Huimin Zhang*, Zhengfei Wang, Michael Weinert, and Lian Li*

Nano Letters 2025, 25, 12, 4689-4695 **(Letter)** Open Access
Publication Date (Web): March 13, 2025

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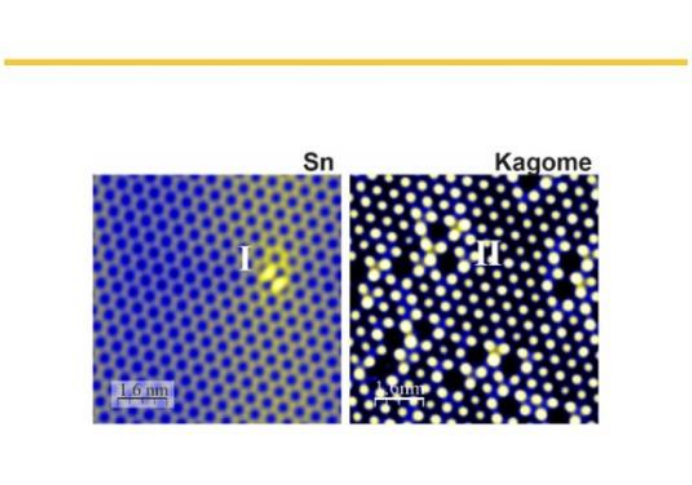
ABSTRACT



Nanoscale Engineering of 3D Intragaps and Compositions in Multimetallic Hollow Superstructures for Enhanced Catalysis

Qianqian Fu, Jingyi Zhou, Xiaoyuan Wang, Wenying Xu, Xiaoli Chen, Liang Chen*, and Youju Huang*

Nano Letters 2025, 25, 12, 4696-4704 **(Letter)** Subscribed
Publication Date (Web): March 11, 2025

Abstract Full text PDF

ABSTRACT

Multi-shelled Hollow Superstructures
Precisely Controllable Intra-gap Distances
Gap-dependent Catalytic Activity

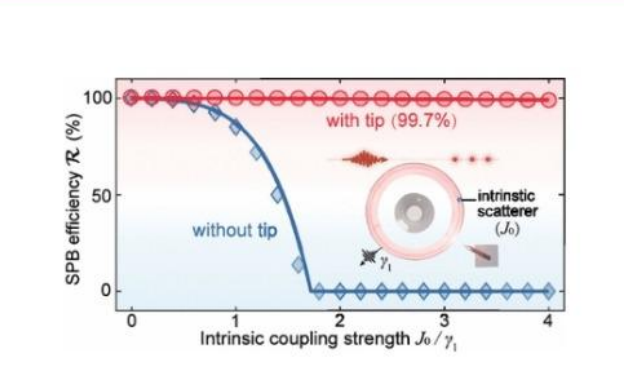
Achieving Robust Single-Photon Blockade with a Single Nanotip

Jian Tang, Yunlan Zuo, Xun-Wei Xu, Ran Huang*, Adam Miranowicz, Franco Nori, and Hui Jing*

Nano Letters 2025, 25, 12, 4705-4712 **(Letter)** Open Access
Publication Date (Web): March 4, 2025

Abstract Full text PDF

ABSTRACT



High-Efficiency Bragg Mirrors by Solution-Based and Roll-to-Roll Processing

Prateek, Tera Huang, Takumi Uchiyama, Dae Eon Jung, Lucas D. Verrastro, Jingyang Yan, Sondre Brandso, Barbara Stewart, Reika Katsumata, Sravya M. Nuguri, Ayush Bhardwaj, Vincent J. Einck, and James J. Watkins*

Nano Letters 2025, 25, 12, 4713-4719 **(Letter)** Subscribed
Publication Date (Web): March 13, 2025

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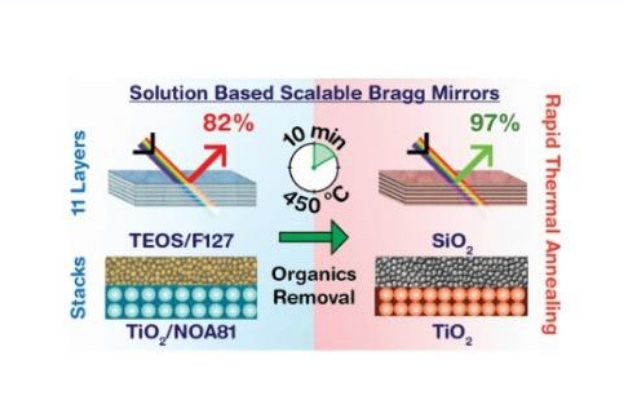
ABSTRACT


Solution Based Scalable Bragg Mirrors
11 Layers
Stacks
82%
97%
10 min
450 °C
TEOS/F127
Organics Removal
TiO$_2$/NOA81
SiO$_2$
TiO$_2$
Rapid Thermal Annealing

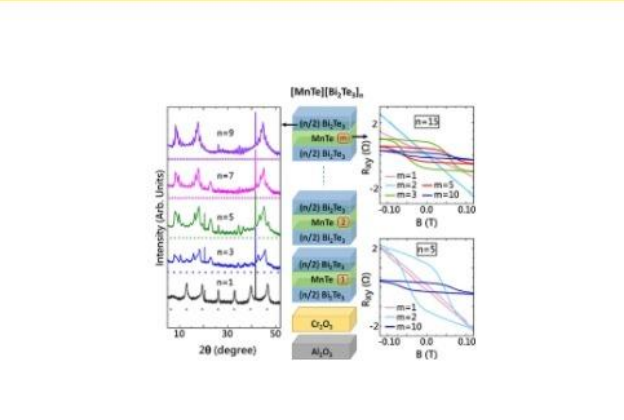
Single-Layer Magnet Phase in Intrinsic Magnetic Topological Insulators, [MnTe][Bi$_2$Te$_3$]$_n$, Far beyond the Thermodynamic Limit

Deepti Jain*, Hee Taek Yi, Xiong Yao, Alessandro R. Mazza, An-Hsi Chen, Kim Kisslinger, Myung-Geun Han, Matthew Brahlek, and Seongshik Oh*

Nano Letters 2025, 25, 12, 4720-4726 **(Letter)** Subscribed
Publication Date (Web): March 13, 2025

Abstract Full text PDF

ABSTRACT



On the Interplay of Electronic and Lattice Screening on Exciton Binding in Two-Dimensional Lead Halide Perovskites

Rohit Rana and David T. Limmer*

Nano Letters 2025, 25, 12, 4727-4733 **(Letter)** Subscribed
Publication Date (Web): March 14, 2025

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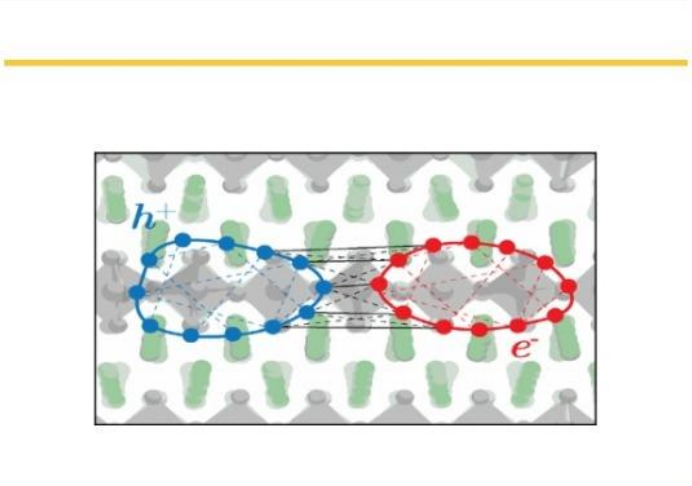

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Morphotaxial Halogenation of Solution-Processed Two-Dimensional Indium Selenide

Brendan P. Kerwin, Jung Hun Lee, M. Iqbal Bakti Utama, Thang T. Pham, Alessandro Pereyra, Vinod K. Sangwan, Vinayak P. Dravid, Antonio Facchetti, Mark C. Hersam, and Tobin J. Marks*

Nano Letters 2025, 25, 12, 4734-4742 **(Letter)** Open Access
Publication Date (Web): March 17, 2025

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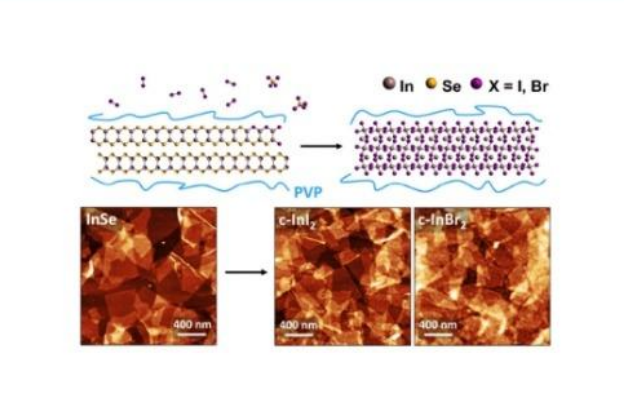
ABSTRACT



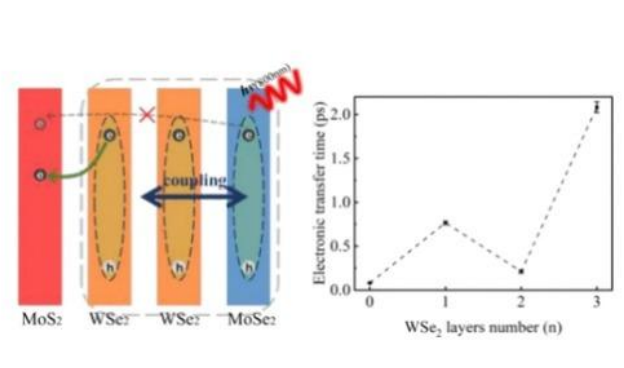
Interlayer Coherent Dipole–Dipole Coupling Facilitates Charge Transfer in Multilayer Transition Metal Dichalcogenide Heterostructures

Zi-Fan Hu, Lei Wang*, Hai Wang, and Hai-Yu Wang*

Nano Letters 2025, 25, 12, 4743-4750 **(Letter)** Subscribed
Publication Date (Web): March 12, 2025

Abstract Full text PDF

ABSTRACT


coupling
MoS$_2$
WSe$_2$
WSe$_2$
MoSe$_2$
Electronic transfer time (ps)

Ultrafast Charged MnO$_2$ Nanosheets/Carbon Fiber with Mechanical and Postcharging Antibacterial Activity

Yang Zou, Qinrong He, Yudong Song, Xiangyu Yang, Xinjian Shi, Shengyan Yin, Song Liang, Zhenning Liu, and Hang Sun*

Nano Letters 2025, 25, 12, 4751-4758 **(Letter)** Subscribed
Publication Date (Web): March 15, 2025

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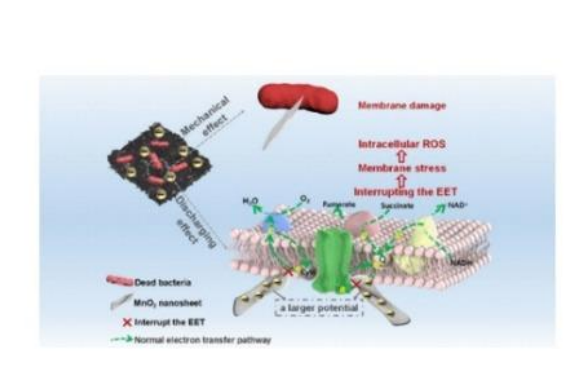
Membrane damage
Dead bacteria
Normal electron transfer pathway

Tissue-Adaptable Hydrogel for Mechanically Compliant Bioelectronic Interfaces

Xinyu Qu, Qian Wang*, Dingli Gan, Hanjun Sun, Zhenhua Ni*, and Xiaochen Dong*

Nano Letters 2025, 25, 12, 4759-4766 **(Letter)** Subscribed
Publication Date (Web): March 13, 2025

Abstract Full text PDF

ABSTRACT

Tissue
Biointerface

Al$_{0.68}$Sc$_{0.32}$N/SiC-Based Metal-Ferroelectric-Semiconductor Capacitors Operating up to 1000 °C

Yunfei He, David C. Moore, Yubo Wang, Spencer Ware, Sizhe Ma, Dhiren K. Pradhan, Zekun Hu, Xingyu Du, W. Joshua Kennedy, Nicholas R. Glavin, Roy H. Olsson III, and Deep Jariwala*

Nano Letters 2025, 25, 12, 4767-4773 **(Letter)** Subscribed
Publication Date (Web): March 17, 2025

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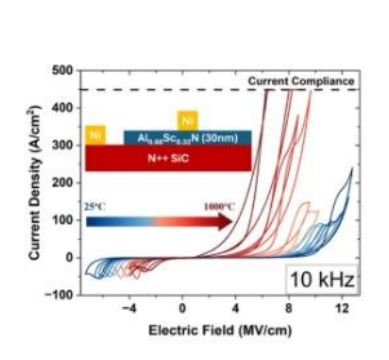

Hyperspectral Electromechanical Imaging at the Nanoscale: Dynamical Backaction, Dissipation, and Quantum Fluctuations

Clément Chardin, Sébastien Pairis, Sabine Douillet, Moïra Hocevar, Julien Claudon, Jean-Philippe Poizat, Ludovic Bellon, and Pierre Verlot*

Nano Letters 2025, 25, 12, 4774-4780 **(Letter)** Subscribed
Publication Date (Web): March 16, 2025

Abstract Full text PDF

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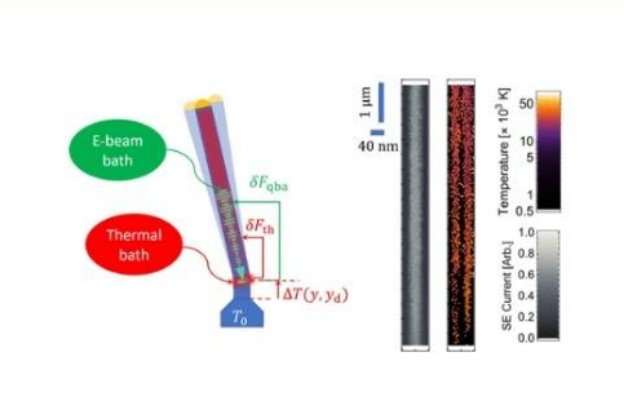
E-beam bath
Thermal bath
1 μm
40 nm

Stable versus Temporally Sensitive Optical Security Tags from Metal Nanoparticles

Maha Ibrar, Megan Knobeloch, Nayana Christudas Beena, Yaroslav Losovyj, Sheng-Yuan Huang, Claire McCurtain, David J. Crandall, Stephen C. Jacobson, and Sara E. Skrabalak*

Nano Letters 2025, 25, 12, 4781-4789 **(Letter)** Subscribed
Publication Date (Web): March 17, 2025

Abstract Full text PDF

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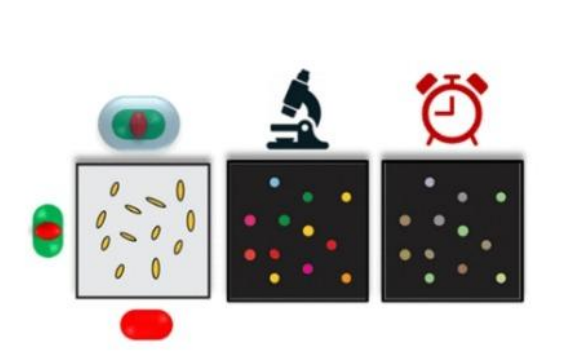


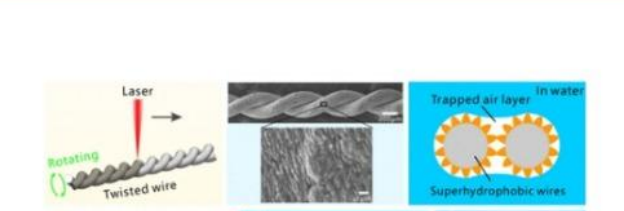
3D Self-Driven Underwater Aerofluidic Systems Woven with Femtosecond Laser-Structured Superhydrophobic Wires

Xinling Mei, Yubin Peng, Jiale Yong*, Zhenrui Chen, Cunyuan Chen, Mingyang Wang, Keyi Zhang, Shengying Fan, Suwan Zhu, Chaowei Wang, Yansheng Yao*, and Dong Wu*

Nano Letters 2025, 25, 12, 4790-4799 **(Letter)** Subscribed
Publication Date (Web): March 17, 2025

Abstract Full text PDF

ABSTRACT


Laser
Twisted wire
Top view
45° Side view
Input bubble

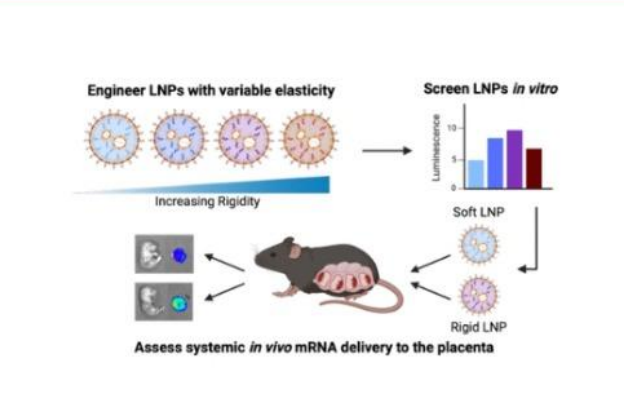
Probing the Role of Lipid Nanoparticle Elasticity on mRNA Delivery to the Placenta

Hannah C. Safford, Cecilia F. Shuler, Hannah C. Geisler, Ajay S. Thatte, Kelsey L. Swingle, Emily L. Han, Amanda M. Murray, Alex G. Hamilton, Hannah M. Yamagata, and Michael J. Mitchell*

Nano Letters 2025, 25, 12, 4800-4808 **(Letter)** Subscribed
Publication Date (Web): March 14, 2025

Abstract Full text PDF

ABSTRACT


Engineer LNPs with variable elasticity
Increasing Rigidity
Assess systemic in vivo mRNA delivery to the placenta

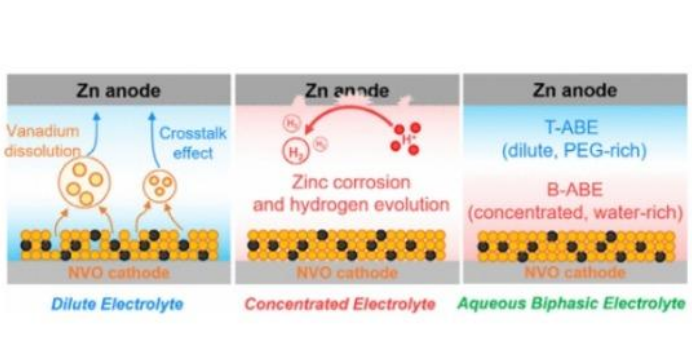
Aqueous Biphasic Electrolyte Enabling Self-Adaptation of Mutually Exclusive Electrolyte Requirements for a Zn Anode and a Cathode

Jinquan Zhou, Baojiu Hao, Hao Yang, Huaisheng Ao, Tao Qian, Zhenkang Wang*, and Chenglin Yan*

Nano Letters 2025, 25, 12, 4809-4817 **(Letter)** Subscribed
Publication Date (Web): March 17, 2025

Abstract Full text PDF

ABSTRACT


Zn anode
Zn anode
Zn anode
Vanadium dissolution
Crosstalk effect
Zinc corrosion and hydrogen evolution
NVO cathode
NVO cathode
Dilute Electrolyte
Concentrated Electrolyte
Aqueous Biphasic Electrolyte

Intralevel Optical Transitions of XV (XV = BV, SiV, and NV) Centers in Fluorinated Diamane

Longbin Yan, Shaobo Cheng*, Yalun Ku, Dongyang Wang, Taiqiao Liu, Xing Li, Zhaofu Zhang*, and Chongxin Shan*

Nano Letters 2025, 25, 12, 4818-4824 **(Letter)** Subscribed
Publication Date (Web): March 4, 2025

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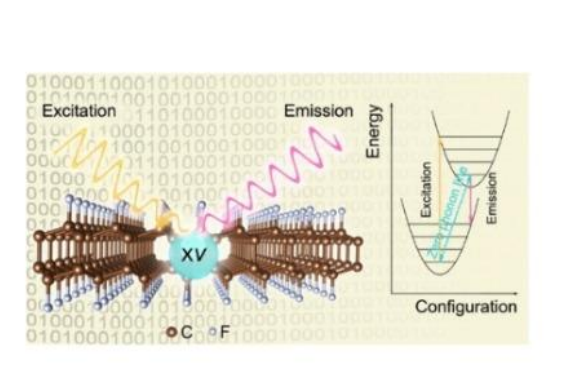
Excitation
Emission
Energy
XV
C
F
Configuration

Multicomponent Magneto-Orbital Order and Magneto-Orbitons in Monolayer VCl$_3$

Luigi Camerano*, Adolfo O. Fumega, Gianni Profeta, and Jose L. Lado

Nano Letters 2025, 25, 12, 4825-4831 **(Letter)** Open Access
Publication Date (Web): February 17, 2025

Abstract Full text PDF

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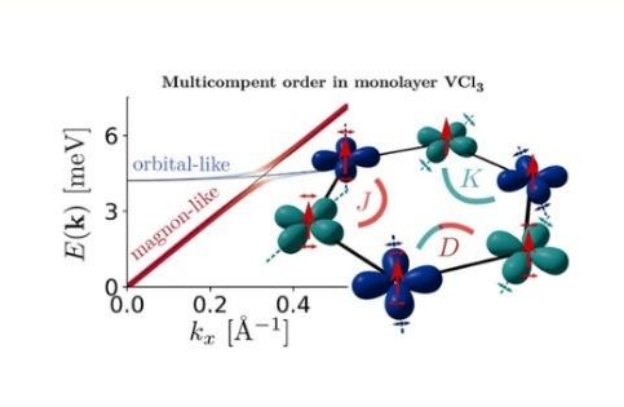

Harnessing Photon Recoil for Enhanced Torque on Light-Driven Metarotors

Mahdi Shanei, Gan Wang, Peter Johansson, Giovanni Volpe, and Mikael Käll*

Nano Letters 2025, 25, 12, 4832-4837 **(Letter)** Open Access
Publication Date (Web): March 3, 2025

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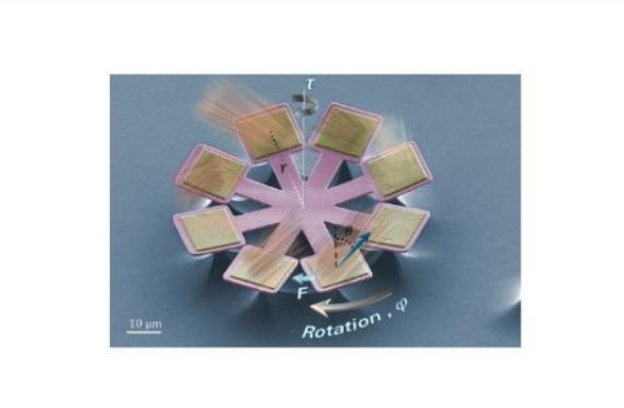
Rotation, φ
10 μm

Nanophotonic Zero-Index-Material-Enabled Optical Coherent Interferometry with High Signal-to-Noise Ratio

Tian Dong, Xingyu Jia, Yujing He, Phatham Loahavilai, Yueyang Liu, Haifeng Hu, Lihua Xu, Le Zhao, Weiguo Chu*, Guanhao Wu*, and Yang Li*

Nano Letters 2025, 25, 12, 4838-4845 **(Letter)** Subscribed
Publication Date (Web): March 3, 2025

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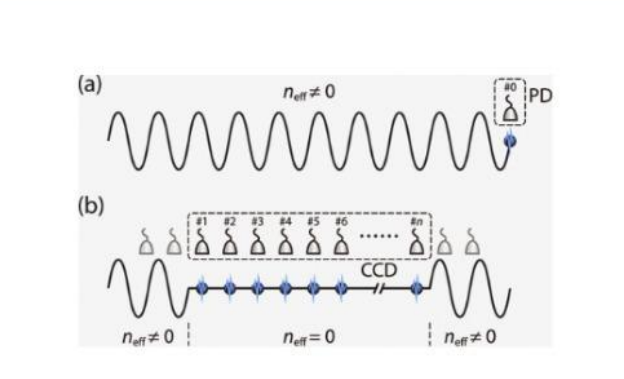
(a)
(b)
n$_{eff}$ ≠ 0
n$_{eff}$ = 0
CCD
PD

Anion-Regulated Solvation Structure and Electrode Interface toward Rechargeable Magnesium Batteries

Duo Zhang, Miao Zhou, Eslam Sheha, Jiulin Wang, Jun Yang, and Yanna NuLi*

Nano Letters 2025, 25, 12, 4846-4853 **(Letter)** Subscribed
Publication Date (Web): March 13, 2025

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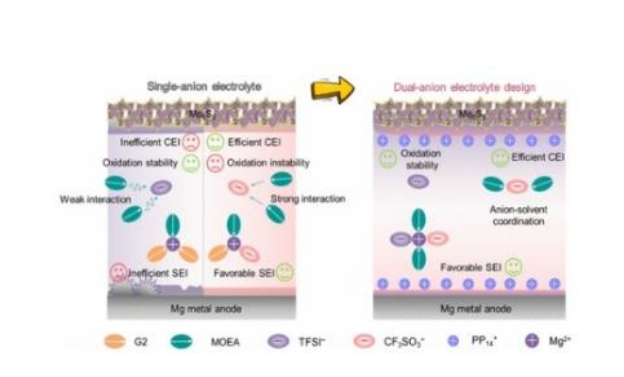
Single-anion electrolyte
Dual-anion electrolyte
Mg metal anode
G2
MOEA
TFSI⁻
CF$_3$SO$_3$⁻

Beam Shaping by Stacked Nonlinear Moiré Metasurfaces

Lun Qu, Wei Wu, Di Zhang, Chenxiong Wang, Lu Bai, Chenyang Li, Wei Cai, Mengxin Ren*, Andrea Alù*, and Jingjun Xu*

Nano Letters 2025, 25, 12, 4854-4861 **(Letter)** Subscribed
Publication Date (Web): March 13, 2025

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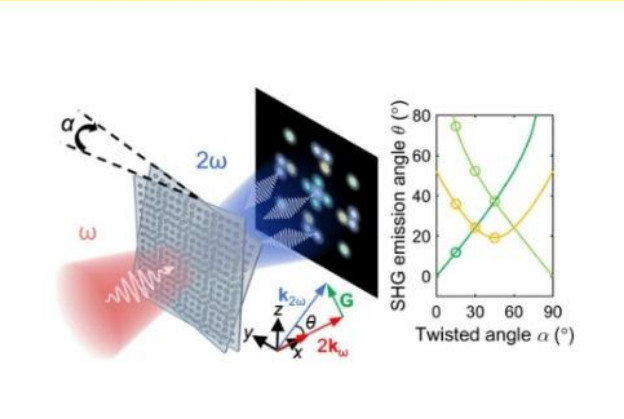
α
ω
2ω
2k$_ω$
SHG emission angle θ (°)
Twisted angle α (°)

Programmable 2H-MoTe$_2$ FGFET-Based CMOS Array

Minglai Li, Zhixuan Cheng, Xionghui Jia, Jiamin Chen, Yi Zhang, Wanjin Xu, Yanping Li, and Lun Dai*

Nano Letters 2025, 25, 12, 4862-4868 **(Letter)** Subscribed
Publication Date (Web): March 12, 2025

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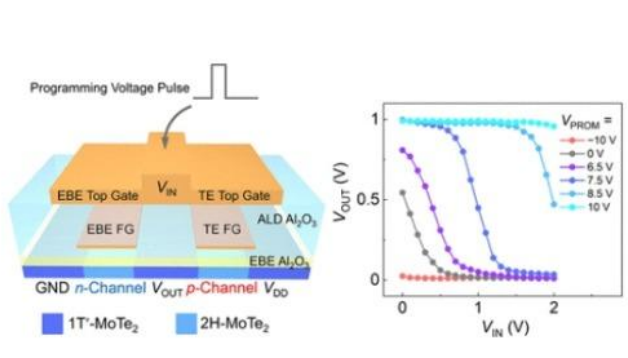
Programming Voltage Pulse
EBE Top Gate
TE Top Gate
EBE FG
TE FG
ALD Al$_2$O$_3$
EBE Al$_2$O$_3$
GND n-Channel V$_{OUT}$ p-Channel V$_{DD}$
1T'-MoTe$_2$
2H-MoTe$_2$
V$_{OUT}$ (V)

Antimony Telluride as Bifunctional Host Material for Dendrite-Free Sodium Metal Batteries

Bofeng Chen, Yanshu Zhao, Bingyang Yuan, Yixin Zhu, and Shaokun Chong*

Nano Letters 2025, 25, 12, 4869-4877 **(Letter)** Subscribed
Publication Date (Web): March 12, 2025

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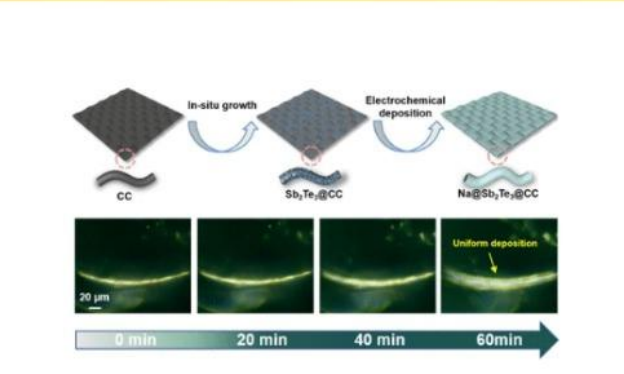
In-situ growth
Electrochemical deposition
CC
Sb$_2$Te$_3$@CC
20 μm
0 min
20 min
40 min

Multifamily Nanozymes for Sustainable and Eco-Friendly Marine Antifouling

Meng Guo, Zhen Chen, Meiyao Song, Yiqing Zhang, Zichang Wang, Anjun Feng, Dongqin Yang, Lina Wang*, and Zhiling Zhu*

Nano Letters 2025, 25, 12, 4878-4886 **(Letter)** Subscribed
Publication Date (Web): March 18, 2025

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ABSTRACT

Organophosphorus Hydrolase Mimics
Hydrolase Family
MnSe
Multi-Family Nanozyme
Oxidoreductase Family
Oxidase Mimics
Peroxidase Mimics
MARINE FOULING
Sustainable
Eco-Friendly
Low-Price

Largely Enhanced Oxygen Evolution Performance in a Ferromagnetic Ruddlesden–Popper Phase Cobaltate

Ziang Meng, Yacong Qi, Peixin Qin*, Xiaorong Zhou, Xiaoning Wang, Hongyu Chen, Li Liu, Guojian Zhao, Zhiyuan Duan, Jinghua Liu*, Qinghua Zhang*, Peizhe Tang*, and Zhiqi Liu*

Nano Letters 2025, 25, 12, 4887-4894 **(Letter)** Subscribed
Publication Date (Web): March 17, 2025

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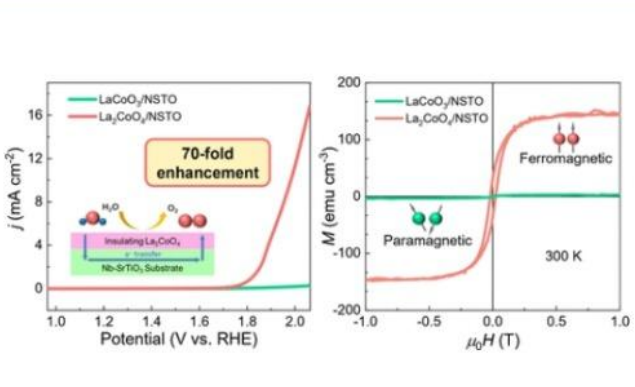

3D Ising Superconductivity in As-Grown Sn Intercalated TaSe$_2$ Crystal

Bo Zheng, Xiaoming Zhang, Kaipu Wang, Ruimin Li, Jin Cao, Changlong Wang, Haige Tan, Zhidong Li, Benchuan Lin, Peng Li, Chuanying Xi, Jingmin Zhang, Yalin Lu*, Wenguang Zhu, Zhongkai Liu, Shengyuan A. Yang, Lain-Jong Li, Feng Liu*, and Bin Xiang*

Nano Letters 2025, 25, 12, 4895-4903 **(Letter)** Subscribed
Publication Date (Web): March 17, 2025

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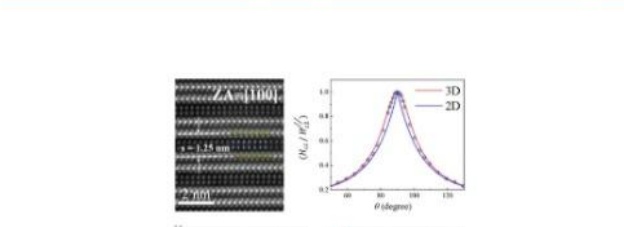
ABSTRACT



Long-Term CO$_2$ Hydrogenation into Liquid Fuels with a Record-High Single-Pass Yield of 31.7% over Interfacial Fe–Zn Sites

Lijun Zhang, Jiankang Zhao, Teng Li, Weizhe Gao*, Hongliang Li*, Luyao Wu, Wei Xia, Wenlong Wu, Chengwei Wang, Fan Wang, Shuhei Yasuda, Xiaoyu Guo, Yingluo He, Guohui Yang, Guangbo Liu, Zhiliang Jin, Jie Zeng*, and Noritatsu Tsubaki*

Nano Letters 2025, 25, 12, 4904-4912 **(Letter)** Subscribed
Publication Date (Web): March 17, 2025

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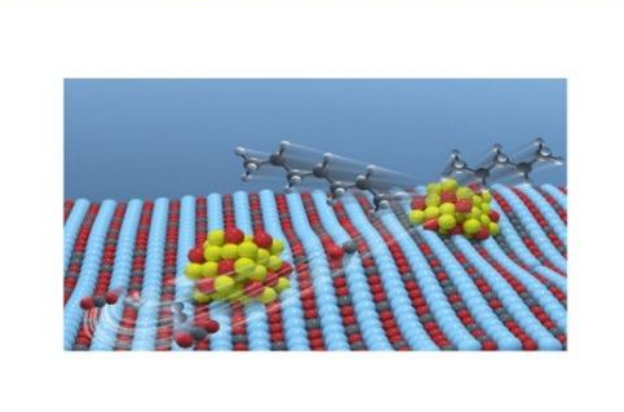

Ultrafast Exciton Formation in Perovskite Quantum Rods

Xue Han, Zhigao Huang, Guofeng Zhang*, Changgang Yang, Jialu Li, Mi Zhang, Zhihao Chen, Jinhui Wang, Ruiyun Chen, Chengbing Qin, Jianyong Hu, Zhichun Yang, Xinghui Liu, Yue Wang*, Jie Ma, Liantuan Xiao*, and Suotang Jia

Nano Letters 2025, 25, 12, 4913-4920 **(Letter)** Subscribed
Publication Date (Web): March 14, 2025

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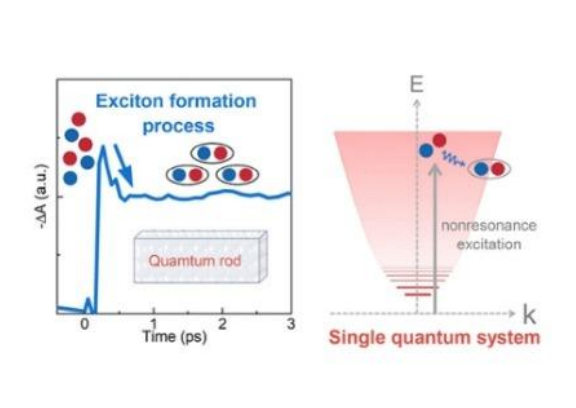
ABSTRACT



MOF Derived Phosphide Nanocubes with Internal Heterojunction: A Study Powered by Single Entity Electrochemistry

Zilong Chen, Hengyue Xu, Tingting Chen, Jiaqi Zhang, Songtao Zhang, Long Chen, Huan Pang, and Zhongjie Huang*

Nano Letters 2025, 25, 12, 4921-4929 **(Letter)** Subscribed
Publication Date (Web): March 17, 2025

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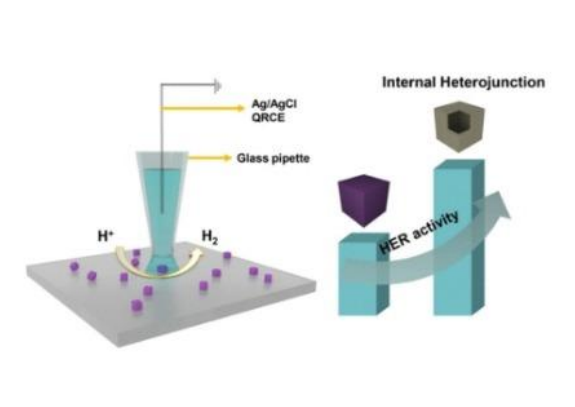
ABSTRACT


Ag/AgCl QRCE
Glass pipette
H⁺
H$_2$
Internal Heterojunction
HER

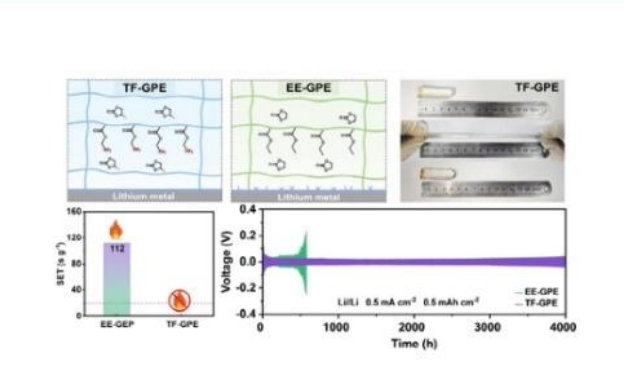
High-Elastic Flame-Retardant Polyacrylate-Based Gel Polymer Electrolyte by Dual-Phase Fluorination for Highly Stable Lithium-Metal Batteries

Yixin Zhang, Zhongpeng Li, Shaojie Zhang, Jinghao Li, Saihai Lei, Peiyang Dong, Weihao Zeng*, Juan Wang, Xingye Chen, Dongqi Li, and Shichun Mu*

Nano Letters 2025, 25, 12, 4930-4938 **(Letter)** Subscribed
Publication Date (Web): March 18, 2025

Abstract Full text PDF

ABSTRACT


TF-GPE
EE-GPE
Voltage (V)
Time (h)

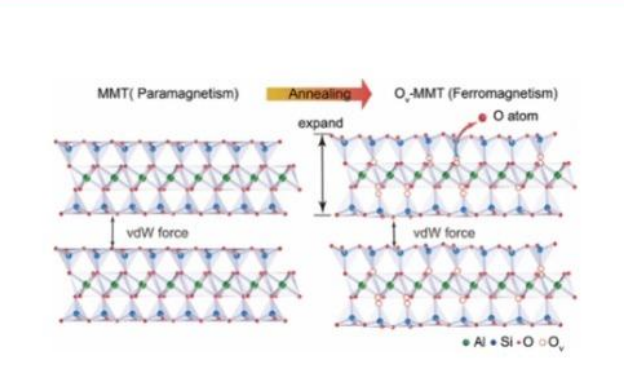
Oxygen Vacancy-Induced Room-Temperature Ferromagnetism in a Layered Aluminosilicate Material

Hongyun Ji, Jian Peng*, Meijun Yang, Qingfang Xu, Tenghua Gao*, Rong Tu, Song Zhang*, and Lianmeng Zhang

Nano Letters 2025, 25, 12, 4939-4945 **(Letter)** Subscribed
Publication Date (Web): March 12, 2025

Abstract Full text PDF

ABSTRACT


MMT(Paramagnetism)
Annealing
O$_v$-MMT (Ferromagnetism)
expand
vdW force
vdW force

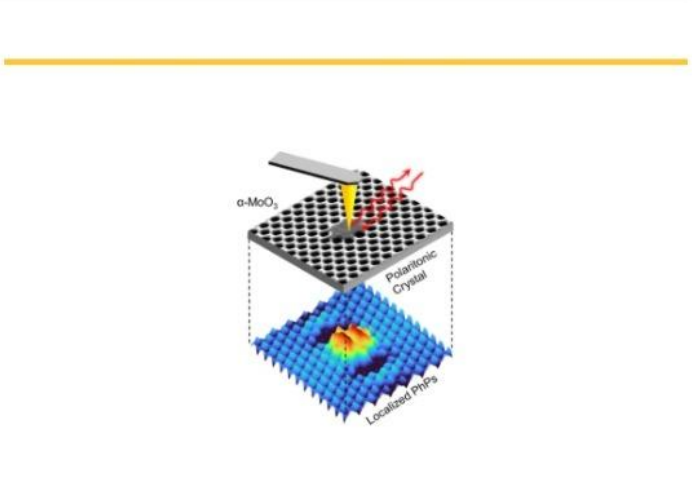
Tailoring Phonon Polaritons with a Single-Layer Photonics-Empowered Polaritonic Crystal

Haoran Lv, Qing Zhang*, Jingying Liu, Guangyuan Si, Youning Gong, Gang Zhong, Yupeng Zhang, Cheng-Wei Qiu*, Qingdong Ou*, and Yuanjie Yang*

Nano Letters 2025, 25, 12, 4946-4953 **(Letter)** Subscribed
Publication Date (Web): March 13, 2025

Abstract Full text PDF

ABSTRACT


α-MoO$_3$
Polaritonic Crystal
Localized PhPs

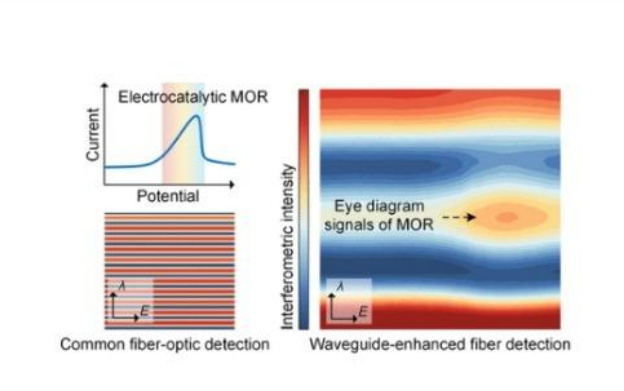
Extraordinary Waveguide-Enhanced Optical Microfiber Sensor for Operando Electrocatalysis Studies

Tiansheng Huang, Jiongshen Pan, Qijian Yuan, Li-Peng Sun*, and Bai-Ou Guan

Nano Letters 2025, 25, 12, 4954-4960 **(Letter)** Subscribed
Publication Date (Web): March 15, 2025

Abstract Full text PDF

ABSTRACT


Electrocatalytic MOR
Current
Potential
Interferometric intensity
Eye diagram signals of MOR
Common fiber-optic detection
Waveguide-enhanced fiber detection

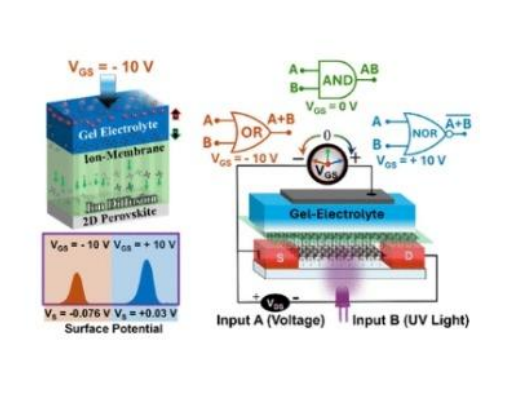
Electrolyte-Gated Ruddlesden–Popper Perovskites for Switchable Optoelectronic Universal Logic Gates

Tanuj Kumar, Mohit Kumar, Ramesh Kumar, Prabhanjan Pradhan, Shumile Ahmed Siddiqui, Kaushik Ghosh, Biplab K. Patra, and Monojit Bag*

Nano Letters 2025, 25, 12, 4961-4968 **(Letter)** Subscribed
Publication Date (Web): March 17, 2025

Abstract Full text PDF

ABSTRACT


V$_{GS}$ = - 10 V
Gel Electrolyte
Ion-Membrane
2D Perovskite
Surface Potential
AND
OR
Gel-Electrolyte
Input A (Voltage)
Input B (UV Light)

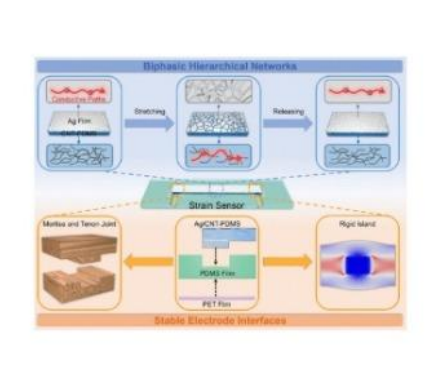
Synergistic Structural Construction of Strain Sensors with Low Baseline Drift and High Sensitivity for Continuous Dynamic Monitoring

Tingkang Yuan, Ruilin Yin, Chengwei Li*, Jingwen Xing, Dongyue Jiang, Zeng Fan*, and Lujun Pan*

Nano Letters 2025, 25, 12, 4969-4978 **(Letter)** Subscribed
Publication Date (Web): March 17, 2025

Abstract Full text PDF

ABSTRACT


Biphasic Hierarchical Networks
Strain Sensor
Stable Electrode Interfaces

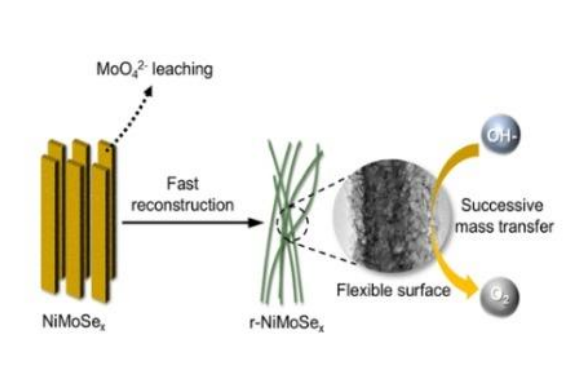
Facile Reconstruction of Se-Regulated NiMo Nanorods for Efficient Anion Exchange Membrane Water Electrolysis

Rui Qin, Qing Yao, Weihao Zeng, Zhongliang Huang, Hongyu Zhao, Nanjun Chen*, and Xiaoqing Huang*

Nano Letters 2025, 25, 12, 4979-4986 **(Letter)** Subscribed
Publication Date (Web): March 17, 2025

Abstract Full text PDF

ABSTRACT


MoO$_4^{2-}$ leaching
Fast reconstruction
NiMoSe$_x$
r-NiMoSe$_x$
Flexible surface
Successive mass transfer

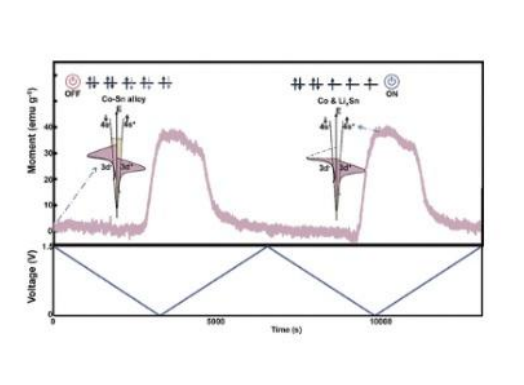
On–Off Magnetism of Ferromagnetic Metals via Electrochemical Driven Band Filling

Zeyuan Bu, Xiang Li, Leqing Zhang, Qingtao Xia, Haoyu Fu, Haining Liu, Lihao Qin, Dongyun Chen*, Shishen Yan, and Qiang Li*

Nano Letters 2025, 25, 12, 4987-4994 **(Letter)** Subscribed
Publication Date (Web): March 12, 2025

Abstract Full text PDF

ABSTRACT



Diffusion of Valley-Coherent Dark Excitons in a Large-Angle Incommensurate Moiré Homobilayer

Arnab Barman Ray, Trevor Ollis, K.R. Sethuraj, and Anthony Nickolas Vamivakas*

Nano Letters 2025, 25, 12, 4995-5002 **(Letter)** Open Access
Publication Date (Web): March 14, 2025

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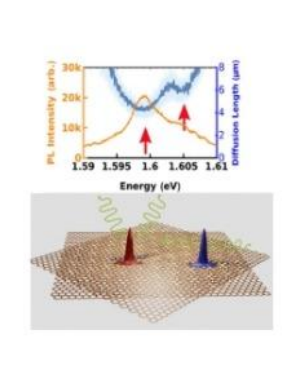
ABSTRACT



Identification and Analysis of Two Critical Structural Parameters Governing the Strength of Carbon Nanotube Fibers

Aike Xi, Qinyuan Jiang, Fei Wang, Siming Zhao, Kangkang Wang, Yonglu Zang, Yanlong Zhao, Ya Huang, Khaixien Leu, and Rufan Zhang*

Nano Letters 2025, 25, 12, 5003-5009 **(Letter)** Subscribed
Publication Date (Web): March 17, 2025

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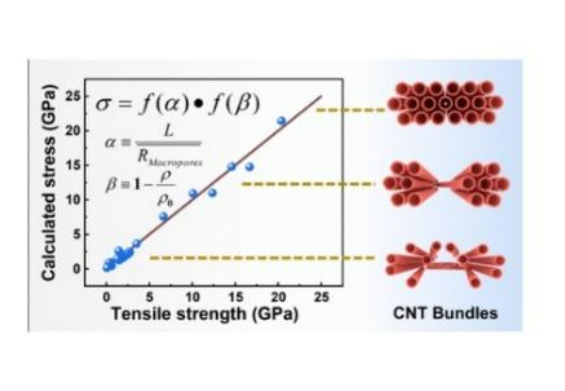
ABSTRACT



Multimodal Profiling of Iron Heterogeneity at the Nanoscale

Junzhe Zhang, Wanqin Dai, Wei Yang, Wenhe Luo, Fengliang Dong, Jialong Hao, Rui-Ying Li, Chaofan Xue, Changjian Xie, Lei Sun, Yun Wang, Jie Ding, Zhuda Song, Jiaqi Shen, Yuhui Ma, Yayun Ding, Lijuan Zhang, Zhiyong Zhang, Yuliang Zhao, and Xiao He*

Nano Letters 2025, 25, 12, 5010-5018 **(Letter)** Subscribed
Publication Date (Web): March 13, 2025

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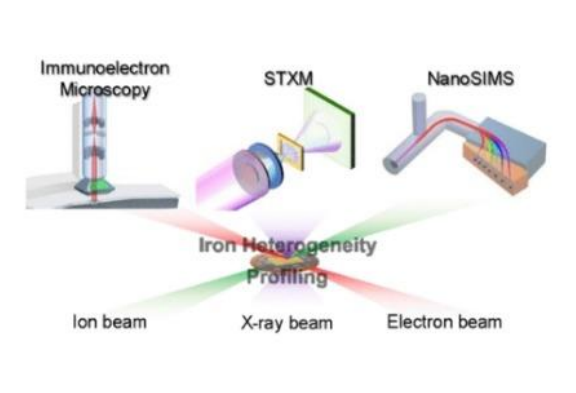
ABSTRACT


Immunoelectron Microscopy
STXM
NanoSIMS
Iron Heterogeneity Profiling
Ion beam
X-ray beam
Electron beam

Harnessing Dirac Semi-Metallicity in a Metal-Free Stand-alone Borophene Composite Electrode for High-Performance Supercapacitors

Alpana Sahu, Partha Pratim Borah, Kalishankar Bhattacharyya*, and Mohammad Qureshi*

Nano Letters 2025, 25, 12, 5019-5026 **(Letter)** Subscribed
Publication Date (Web): March 13, 2025

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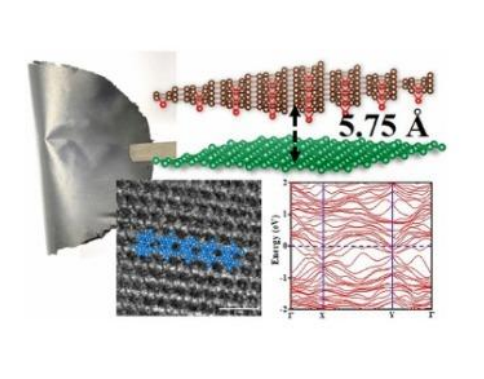
ABSTRACT



Electricity-Efficient On-Demand Photothermal Activation for Tunable Thermochromic Windows

Hongchao Peng, Weijie Lin, Yingchun Gu, Qin Yang, Sheng Chen*, Runfang Fu*, and Bin Yan*

Nano Letters 2025, 25, 12, 5027-5034 **(Letter)** Subscribed
Publication Date (Web): March 12, 2025

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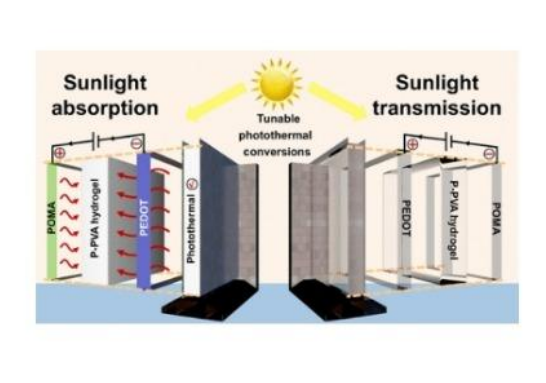
ABSTRACT


Sunlight absorption
Tunable photothermal conversions
Sunlight transmission
PDMA
P-PVA hydrogel
PEDOT
Photothermal

Liquid-Phase Electrochemically Autooxidized Doping of PEDOT Enabling Fabry–Pérot Electrochromic Pixels

Yongsheng Liu, Ran Li, Zhiyuan Bai, Jiaqi Chen, Kun Wang, Chengyi Hou, Qinghong Zhang, Yaogang Li, Kerui Li*, and Hongzhi Wang*

Nano Letters 2025, 25, 12, 5035-5042 **(Letter)** Subscribed
Publication Date (Web): March 17, 2025

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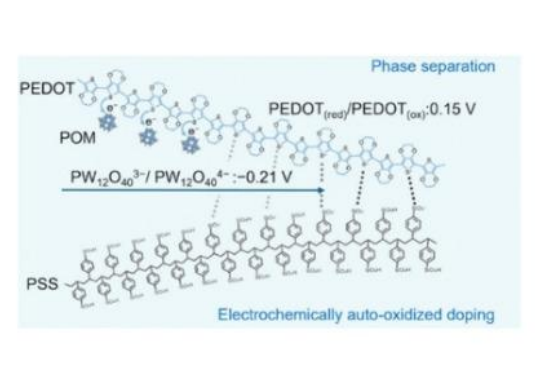
ABSTRACT


Phase separation
PEDOT
POM
PEDOT$_{(red)}$/PEDOT$_{(ox)}$:0.15 V
PW$_{12}$O$_{40}^{3-}$/ PW$_{12}$O$_{40}^{4-}$:~0.21 V
PSS
Electrochemically auto-oxidized doping

Strategy for Using Electrolyte Additives to Regulate Zinc-Ion Battery Anode Interfaces via Tautomerism

Xiao Yu, Hanhao Liang, Jiaming Li, Jiaqi Li, Yini Long, Junyi Han, Nan Li, and Zhanhong Yang*

Nano Letters 2025, 25, 12, 5043-5051 **(Letter)** Subscribed
Publication Date (Web): March 14, 2025

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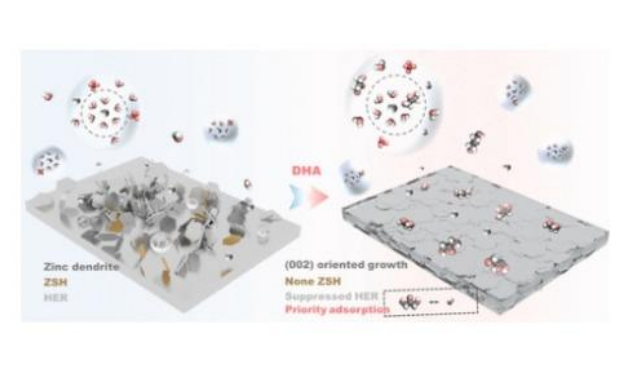
ABSTRACT


DHA
Zinc dendrite
ZSH
HER
(002) oriented growth
None ZSH
Suppressed HER
Priority adsorption

Ultra-High-Resolution Full-Color Quantum Dot Light-Emitting Diodes through Cross-Linking-Assisted Hierarchical Confined Assembly

Ke Fang, Baoxiang Yang, Hui Li*, Yuyu Jia, Ning Guo, Tianchen Li, Ke He, Hanfei Gao*, Lei Jiang, and Yuchen Wu*

Nano Letters 2025, 25, 12, 5052-5059 **(Letter)** Subscribed
Publication Date (Web): March 17, 2025

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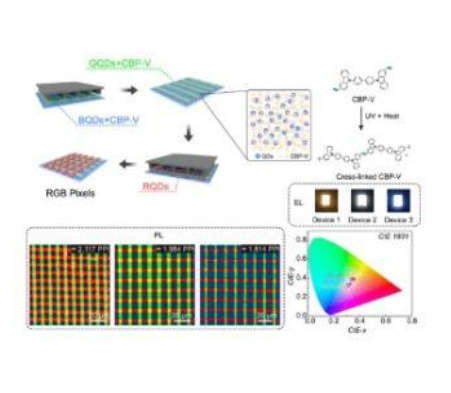
ABSTRACT


GQDs+CBP-V
BQDs+CBP-V
RGB Pixels
RQDs
CBP-V
UV + Heat
Cross-linked CBP-V
Device 1
Device 2
Device 3
PL

ADDITIONS AND CORRECTIONS

Correction to "Resolving the Kinetics of Single-Walled Carbon Nanotube–Polyester Polyurethane Nanoparticle Conjugate Fluorescence Sensors toward Polymer Degrading Enzymes"

Mei-Tsan Kuo and Nigel F. Reuel*

Nano Letters 2025, 25, 12, 5060 **(Addition/Correction)** Subscribed
Publication Date (Web): March 11, 2025

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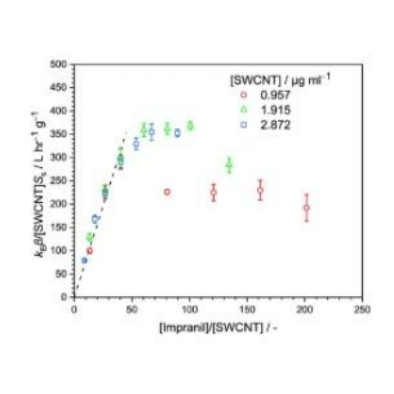

Correction to "Coiled Carbon Nanotube Fibers Sheathed by a Reinforced Liquid Crystal Elastomer for Strong and Programmable Artificial Muscles"

Guang Yang, Lizhong Dong, Ming Ren, Bo Cui, Xiaojie Yuan, Xiaobo Wang, Yuxin Li, Wei Li, Guanlong Qiao, Yunfeng Shao, Weiwei Li, Xiaona Wang, Panpan Xu, Hongbin Fang, Jiangtao Di*, and Qingwen Li

Nano Letters 2025, 25, 12, 5061 **(Addition/Correction)** Subscribed
Publication Date (Web): March 14, 2025

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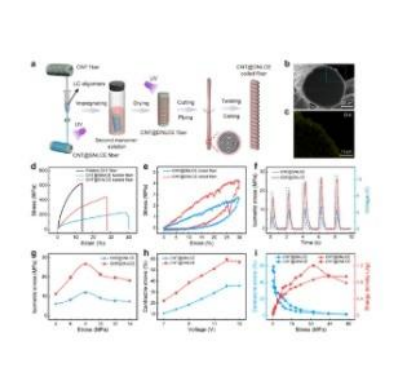

MASTHEADS

Issue Editorial Masthead

Nano Letters 2025, 25, 12, XXX-XXX **(Article)** Subscribed
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Issue Publication Information

Nano Letters 2025, 25, 12, XXX-XXX **(Article)** Subscribed
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