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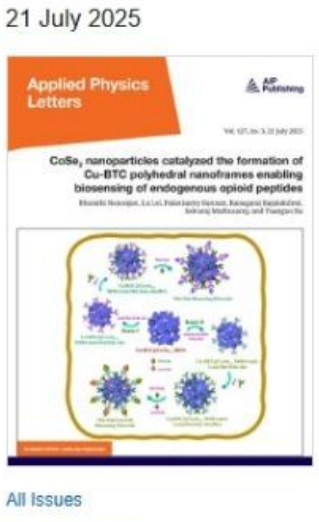

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In this Issue

OPTICS, PHOTONICS, AND ELECTROMAGNETISM
PHYSICS OF SURFACES AND INTERFACES
METASURFACES, METAMATERIALS, AND NANOTECHNOLOGY
MATERIALS PHYSICS
PHYSICS OF SEMICONDUCTORS
MAGNETISM AND SPINTRONICS
DIELECTRICS, FERROELECTRICS, AND MULTIFERROICS
LOW-DIMENSIONAL AND

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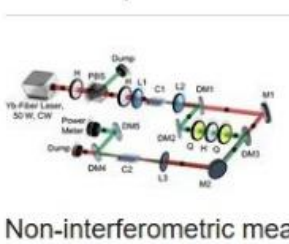
Sebastian A. Schulz, Rupert. F. Oulton, et al.

Hard x-ray photoemission study of bulk single-crystalline $InGaZnO_4$
Goro Shibata, Yunosuke Takahashi, et al.

Membrane phononic crystals for high-Q_m mechanical defect modes at MHz frequencies in piezoelectric aluminum nitride
Anastasiia Ciers, Laurentius Radit Nindito, et al.

OPTICS, PHOTONICS, AND ELECTROMAGNETISM



Non-interferometric measurement of geometric phase through stimulated second harmonic generation
Chahat Kaushik; Anirban Ghosh; S. Chaitanya Kumar; Kavita Devi; Ritwick Das; G. K. Samanta
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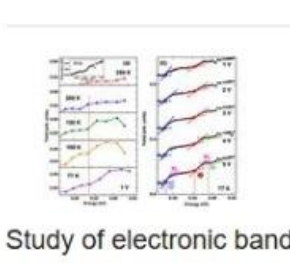

Study of electronic band alignment in SiGeSn/GeSn quantum well via internal photoemission effect
In Special Collection: Mid and Long Wavelength Infrared Photonics, Materials, and Devices
Justin Rudie; Huong Tran; Yang Zhang; Sylvester Amoah; Sudip Acharya; Hryhorii Stanchu; Mansour Mortazavi; Timothy A. Morgan; Gregory T. Forcherio; Greg Sun; Gregory Salamo; Wei Du; Shui-Qing Yu
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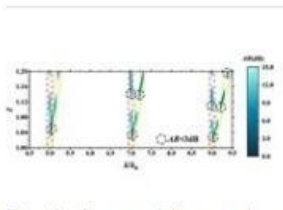

Dual-channel linear-to-circular polarization conversion based on a photonic time crystal
Jun-Rui Pan; Shuo Dai; Hai-Feng Zhang
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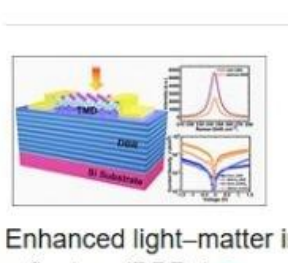

Enhanced light–matter interaction and photodetection in TMDs using distributed Bragg reflectors (DBRs)
Kritika Bhattacharya; Chumki Nayak; Suprovat Ghosh; Santanu Manna; Achintya Singha; Yordan Marchev Georgiev; Samaresh Das
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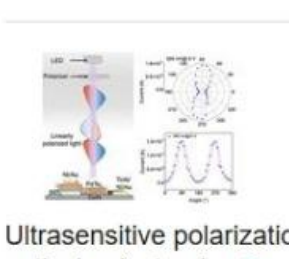

Ultrasensitive polarization-dependent ultraviolet detection enabled by electrical and optical anisotropies
Jinjie Zhu; Qing Cai; Pengfei Shao; Haifan You; Hui Guo; Jin Wang; Junjun Xue; Bin Liu; Hai Lu; Zili Xie; Youdou Zheng; Rong Zhang; Dunjun Chen
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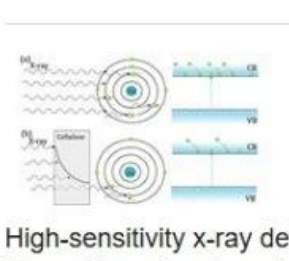

High-sensitivity x-ray detection of stacked A4 sheets using Ga_2O_3 Schottky barrier diodes: Toward low-dose imaging and material discrimination
Sunjae Kim; Thanh Huong Vo; Hyeon Gu Cho; Se Hoon Gihm; Ji-Hyeon Park; Dae-Woo Jeon; Wan Sik Hwang
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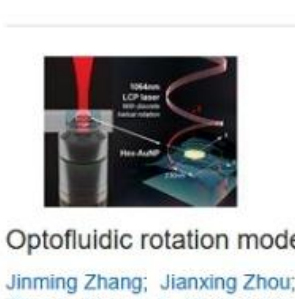

Optofluidic rotation mode transitions control in hexagonal gold nanoprisms
Jinming Zhang; Jianxing Zhou; Yuhang Peng; Yifei Liu; Yuchao Li; Chao Lang; Zhengtian Jin; Xiaoqi Dai; Yili Zhong; Yinjue Ji; Meiting Wang; Junle Qu; Jiajie Chen; Yuye Wang; Yonghong Shao
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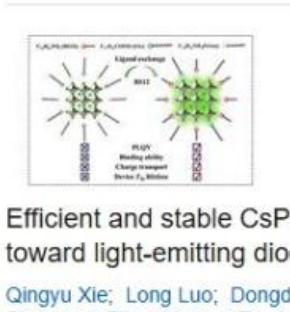

Efficient and stable $CsPbBr_3$ perovskite quantum dots by dodecyl dimethyl betaine ligand toward light-emitting diode
Qingyu Xie; Long Luo; Dongdong Yan; Daofu Wu; Xiaosheng Tang; Muzhi Cai; Ronglei Fan; Wei Pei; Shengnan Tian; Yusong Tu; Yongfeng Liu
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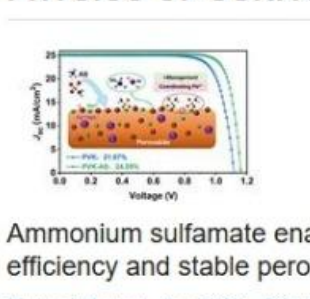

Ammonium sulfamate enables multifunctional surface defect management for high-efficiency and stable perovskite solar cells F
Yiqiong Zhang; Jiapei Xu; Siyu Wang; Jingxian Fu; Shuai Xu; Minmin Wang; Yanqiang Hu; Yanfeng Tang
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Velocity and temperature dependent adhesion and friction in mesoscale graphite contacts
Chenxu Liu; Gautham Vijayan; Michael Uzhansky; Elad Koren
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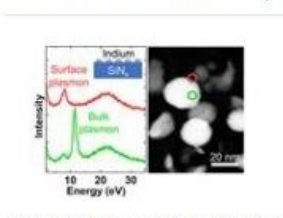

Formation and optical properties of indium nanoparticle arrays for deep-UV plasmonics
H. D. L. McKenna; B. Shrestha; E. Lu; H. Lott; I. Subedi; X. Chen; S. Hwang; D. Zakharov; N. J. Podraza; J. C. Yang; R. S. Goldman
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Teng-ge A; Qi-feng Liu; Han Xiong; Xiao-wen Wu
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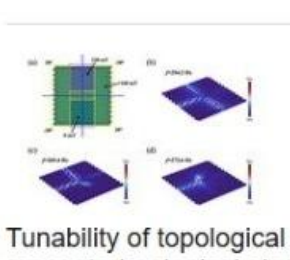

Tunability of topological rainbow capture and waveguide in phononic crystals based on magnetorheological elastomers
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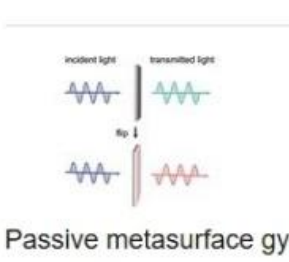

Passive metasurface gyrators combining chiral and gyromagnetic effects
Wenjia Li; Qiuyi Lyu; Aidan L Zhang; Xiaobo Yin
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Enhanced terahertz metasurface biosensor with reduced substrate effect for trace detection of lung cancer cells EP
Yunhao Cao; Mingyao Gao; Hongshun Sun; Yusa Chen; Zewen Wei; Wengang Wu
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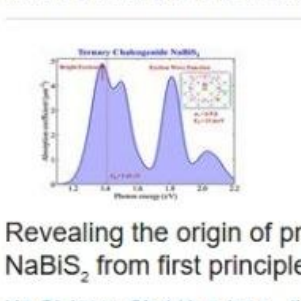

Revealing the origin of promising photovoltaic performance in ternary chalcogenide $NaBiS_2$ from first principles
Un-Gi Jong; Chol-Hun Jang; Jin-Song Kim; Chol-Jun Yu
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Demonstration of high threshold voltage Tri-gate hybrid ferroelectric gate stack GaN HEMT with 1.2 GW/cm^2 Baliga's figure-of-merit and highly robust TDDB stability
Rahul Rai; Hung Duy Tran; Tsung Ying Yang; Baquer Mazhari; Edward Yi Chang
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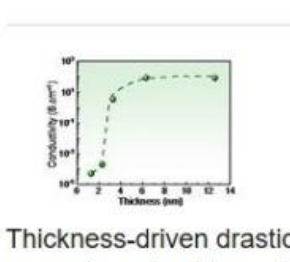

Thickness-driven drastic transition in the electrical conductivity of ultrathin MoS_2 films grown by pulsed laser deposition EP
Anoir Hamdi; Driss Mouloua; Loïck Pichon; Nitul S Rajput; Mimoun El Marssi; Mustapha Jouiad; My Ali El Khakani; Emanuele Orgiu
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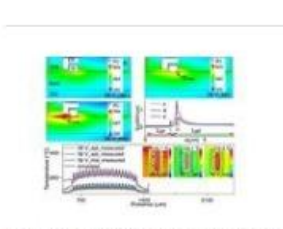

Impedance-dependent degradation in GaN HEMTs under high-voltage RF stress: Electro-thermal and trap mechanisms
Linling Xu; Hui Guo; Shuai Wang (王帅); Jiaofen Yang; Yugang Zhou; Aiqiang Cheng; Kaixiang Jia; Chen Ge; Huiqin Zhao; Lin Hao; Chang Han; Youdou Zheng; Rong Zhang; Dunjun Chen
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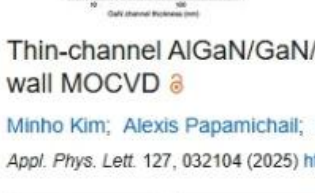

Thin-channel AlGaN/GaN/AlN double heterostructure HEMTs on AlN substrates via hot-wall MOCVD
Minho Kim; Alexis Papamichail; Dat Q. Tran; Plamen P. Paskov; Vanya Darakchieva
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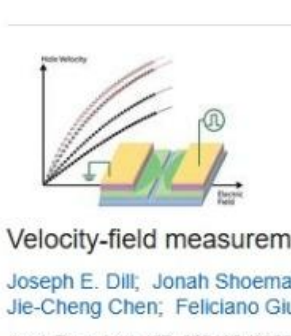

Velocity-field measurements in a GaN/AlN two-dimensional hole gas
Joseph E. Dill; Jonah Shoemaker; Kazuki Nomoto; Jimy Encomendero; Zexuan Zhang; Chuan F. C. Chang; Jie-Cheng Chen; Feliciano Giustino; Stephen Goodnick; Debdeep Jena; Huili Grace Xing
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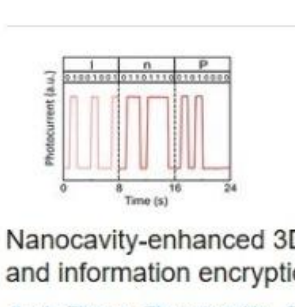

Nanocavity-enhanced 3D-graphene/InP heterojunction for broad-spectral photodetection and information encryption
Jinqiu Zhang; Zhenghao Xu; Fanghao Zhu; Shanshui Lian; Genqiang Cao; Hui Ma; Li Zheng; Gang Wang
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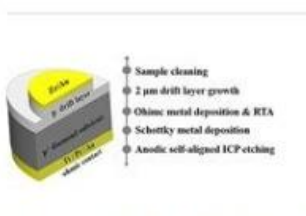

Over 450 V breakdown voltage in diamond vertical Schottky barrier diodes with anodic self-aligned mesa termination
Xixiang Zhao; Shumiao Zhang; Guoqing Shao; Qi Li; Genqiang Chen; Jiali Wang; Feng Wen; Yanfeng Wang; Hongxing Wang
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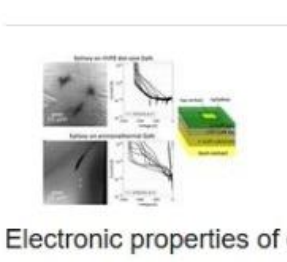

Electronic properties of extended surface defects in homoepitaxial GaN diodes
Andrew J. Winchester; Valery Ortiz Jimenez; Dara Weiss; Curt A. Richter; Behrang H. Hamadani; Michael A. Mastro; Travis J. Anderson; Jennifer K. Hite; Sujitra Pookpanratana
Appl. Phys. Lett. 127, 032108 (2025) https://doi.org/10.1063/5.0274143
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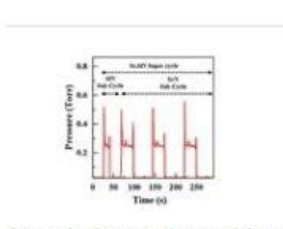

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Md. Mehedi Hasan Tanim; Md. Tanvir Hasan; Zhengwei Ye; Shubham Mondal; Jiangnan Liu; Kai Sun; Zetian Mi
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2.87 kV/3.68 mΩ cm^2 low forward voltage Ga_2O_3 vertical SBD with nitrogen-doped protecting ring and mesa termination
Xueli Han; Xiaorui Xu; Zhengbo Wang; Hanchao Yang; Desen Chen; Yicong Deng; Duanyang Chen; Haizhong Zhang; Hongji Qi
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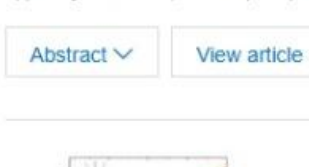

Ultralow threshold voltage in an epitaxial *p*-GeFeTe/*n*-Si heterojunction enabled by magnetic field modulation
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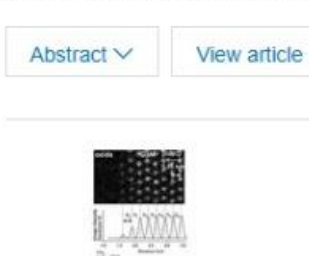

Structure of the very first atomic layer of Ga oxide on GaN at GaN oxidation front
Emi Kano; Shuto Hattori; Kenji Shiraishi; Atsushi Oshiyama; Takahide Umeda; Tetsuo Narita; Tetsu Kachi; Nobuyuki Ikarashi
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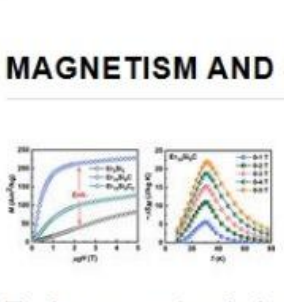
MAGNETISM AND SPINTRONICS



Tuning magnetocaloric effect by carbon interstitial phase in $RE_{15}Si_9C_x$ (RE = Er, Ho) compounds for hydrogen liquefaction
Lu Tian; Haobo Sun; Jianjian Gong; Zhenxing Li; Guodong Liu; Jun Shen; Zhaojun Mo
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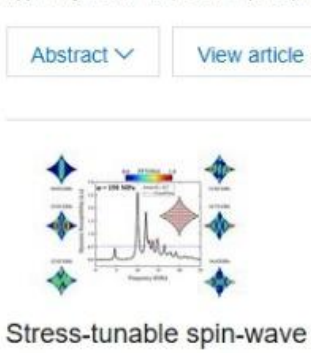

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Eduardo Saavedra; Helmunt Vigo-Cotrina; Carlos Saji; David Laroze; Juan Escrig
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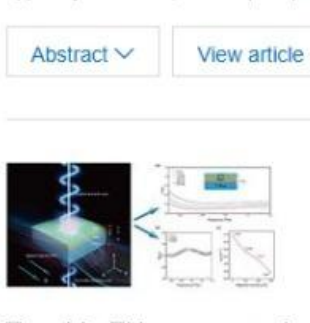

Tunable THz response in cobalt ferrite via magnetic field modulation
Zhen Zhou; Lvkang Shen; Xiaohua Xing; Keyu Tan; Die Zou; Qiankun Zhang; Rui Zhu; Zhiyong Wang; Jianquan Yao; Ming Liu; Jianing Chen; Liang Wu
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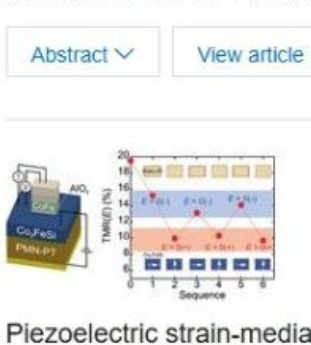

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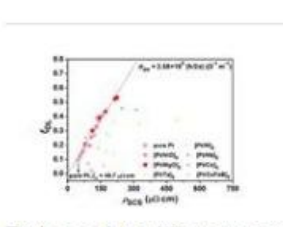

Pt-based multilayers toward energy-efficient spin–orbit torque devices
Tzu-Chien Huang; Kuan-Yu Chi; Chun-Yi Lin; Chun Yang; Ming-Yuan Song; Chen-Yu Hu; Xinyu Bao; Chi-Feng Pai
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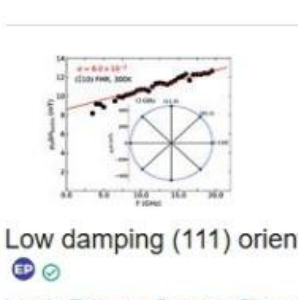

Low damping (111) oriented lithium aluminum ferrite thin films for spin wave applications EP
Lerato Takana; Sanyum Channa; Xin Yu Zheng; Daisy O'Mahoney; Sauviz Alaei; Yuntian Li; Arturas Vailionis; Padraic Shafer; Alpha T. N'Diaye; Christoph Klewe; Ian Fisher; Yuri Suzuki
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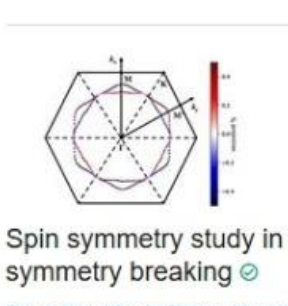

Spin symmetry study in non-collinear CrSe: Odd-wave magnetism induced by glide mirror symmetry breaking
Shuo Xu; Meiyin Yang; Yanru Li; Bowen Shen; Shuaiyu Gong; Jingsong Huang; Peiyue Yu; Ying Li; Jun Luo
Appl. Phys. Lett. 127, 032407 (2025) https://doi.org/10.1063/5.0274506
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Magnetic skyrmions in confined nanocap geometries
Shan Abraham Sam; Veda Pradeep; Joe Sunny; Johannes Seyd; Timo Schmidt; Aladin Ullrich; Michal Krupiński; Manfred Albrecht; Senoy Thomas
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DIELECTRICS, FERROELECTRICS, AND MULTIFERROICS

Electrical stress-induced damage in $TiN/Ti/HfO_2/W$ memristors: The critical role of voltage polarity and vacuum condition
M. Saludes-Tapia; F. Campabadal; L. Solé; X. Borrisé; E. Miranda; M. B. González
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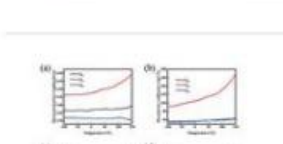

Temperature-dependent characterization of piezoelectric, dielectric, and elastic properties in $K_{0.61}Na_{0.39}NbO_3$ single crystals
Song Jin; Chengpeng Hu; Xiangda Meng; Xuejie Sun; Mingxuan Liu; Ming Qiu; Yining Dong; Peng Tan; Yu Wang; Jiazhi Wang; Hao Tian
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LOW-DIMENSIONAL AND TOPOLOGICAL PHYSICS

Evidence of electron–phonon coupling in type-II Weyl semimetal $TaIrTe_4$
Muchen Du; Shida Huo; Luojun Du; Yaxian Wang; Enxiu Wu
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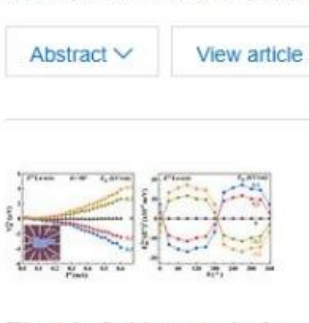

Electric field control of nonlinear Hall effect in the type-II Weyl semimetal $TaIrTe_4$
Jiaju Yang; Lujun Wei; Yanghui Li; Lina Chen; Wei Niu; Shuo Wang; Feng Li; Ping Liu; Shuang Zhou; Yong Pu
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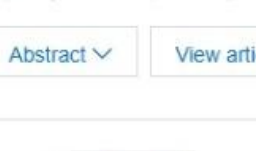

Strain-induced topological transitions in epitaxial films of cadmium arsenide
Sina Ahadi; Victor Huang; Arman Rashidi; Simon Munyan; Michael Smith; Victor L. Quito; Peter P. Orth; Ivar Martin; Susanne Stemmer
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Polarization-sensitive short-wave infrared photodetector with high responsivity enabled by $PdSe_2/Bi_2O_2Se$ heterostructure F
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ELECTRONICS AND OPTOELECTRONICS

Widely tunable short-wave mid-infrared hybrid lasers enabled by a single ultra-compact silicon microring resonator
In Special Collection: Mid and Long Wavelength Infrared Photonics, Materials, and Devices
Jincheng Wei; Zhengqi Geng; Kan Huang; Yihang Chen; Ying Yu; Chengao Yang; Zhichuan Niu; Ruijun Wang; Siyuan Yu
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Solar-blind ultraviolet β-Ga_2O_3 phototransistor for logic and secure optical communication applications F
Anqi Qiang; Bingjie Ye; Leyang Qian; Huazhen Sun; Xiumei Zhang; Yushen Liu; Irina N. Parkhomenko; Fadei F. Komarov; Xinyi Shan; Yu Liu; Guofeng Yang
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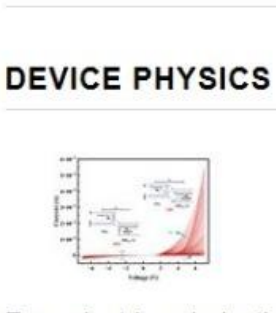
DEVICE PHYSICS



Ferroelectric polarization-driven ionic modulation enabling enhanced self-rectification in NiO_x/HfO_{2-x}: Al memristors
Jiajing Wei; Yanfang He; Ying Yang; Huimin Zhang; Yufang Xie; Chenglin Zhang; Yuan Liu; Mingming Chen; Dawei Cao
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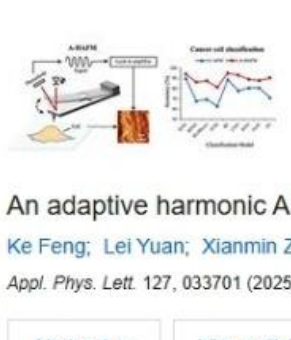
BIOIMAGING, BIOSENSORS, AND MEDICAL PHYSICS



An adaptive harmonic AFM probe with enhanced sensitivity for cellular imaging
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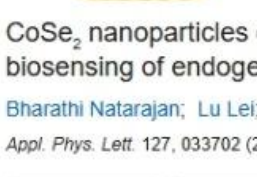

$CoSe_2$ nanoparticles catalyzed the formation of Cu-BTC polyhedral nanoframes enabling biosensing of endogenous opioid peptides F
Bharathi Natarajan; Lu Lei; Palanisamy Kannan; Kanagaraj Rajalakshmi; Selvaraj Muthusamy; Yuanguo Xu
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Flexible dual-gated synaptic transistor for integrated physiological signal recognition
Muhammad Irfan Sadiq; Muhammad Zahid; Jiaying Gong; Chenxing Jin; Fawad Aslam; Junliang Yang; Jia Sun
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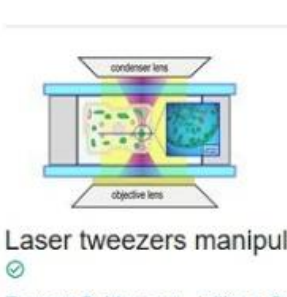

Laser tweezers manipulation of diatom chloroplasts and intracellular viscosity evaluation
Evgeny S. Vavaev; Julijana Cvjetinovic; Evgeny V. Lyubin; Yekaterina D. Bedoshvili; Nickolai A. Davidovich; Pavlos Lagoudakis; Andrey A. Fedyanin; Dmitry A. Gorin
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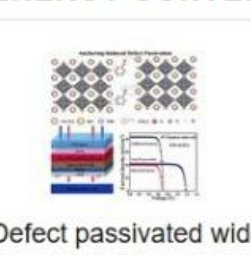
ENERGY CONVERSION AND STORAGE



Defect passivated wide-bandgap perovskite films for high performance four-terminal perovskite/silicon tandem solar cells
Muhammad Rafiq; Hengyue Li; Xinyue Wang; Xiang Liao; Qiang Zeng; Muhammad Tahir; Enbing Bi; Fangyang Liu; Mustafa Haider; Junliang Yang
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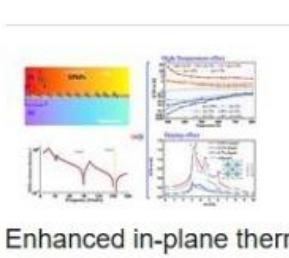

Enhanced in-plane thermal conductivity of polar $SrTiO_3$ by surface phonon polaritons within dual Reststrahlen band
Tao Cheng; Huanhuan Zhao; Li Lin; Mingyi Ma; Linhua Liu; Jia-Yue Yang
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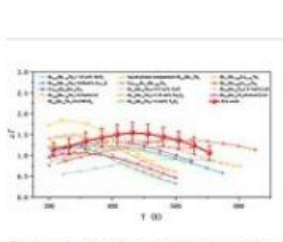

Synergistic optimization effects of energy band and interface engineering on the thermoelectric properties of $Bi_{0.46}Sb_{1.54}Te_3$
Kaiwen Zhao; Mengyao Li; Yingjiu Zhang; Hongzhang Song
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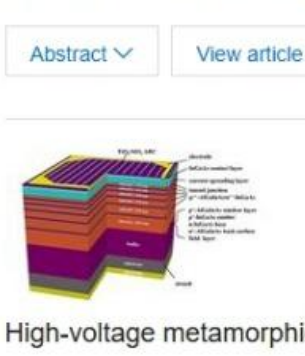

High-voltage metamorphic 1064 nm InGaAs multi-junction laser power converters
Mingjiang Xia; Yurun Sun; Tingting Li; Shuzhen Yu; Jianrong Dong
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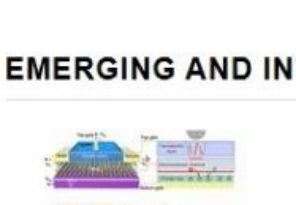
EMERGING AND INTERDISCIPLINARY APPLIED PHYSICS



Ferroelectric transistor with tunable depolarization for artificial synapse with biphasic temporal response
Xinchen Zhou; Hongcheng Ruan; Yuhui He; Fuwei Zhuge; Hongyang Zhao; Tianyou Zhai
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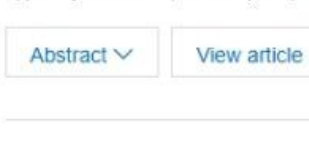

Tuning current-induced electron wind forces for adsorbates on graphene
Anshul Saxena; Narayana R. Aluru
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