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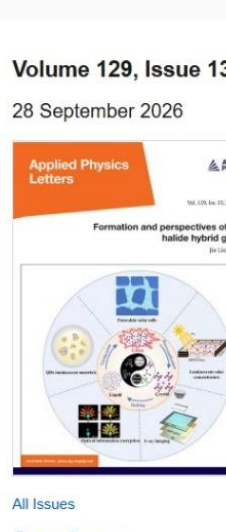

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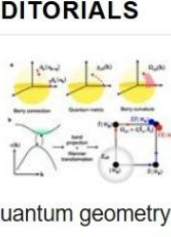
EDITORIALS



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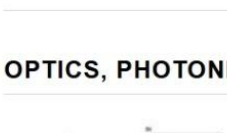
OPTICS, PHOTONICS, AND ELECTROMAGNETISM



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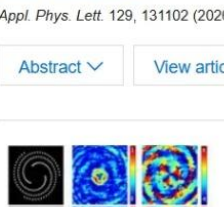

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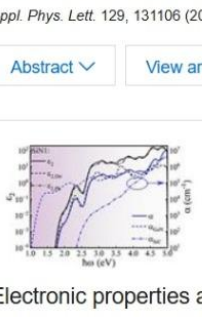

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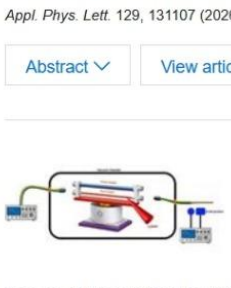

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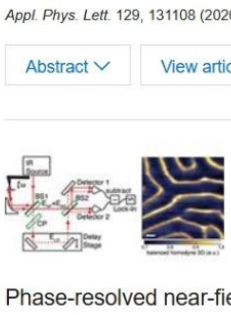

Phase-resolved near-field optical microscopy approaching the shot-noise limit
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Guided-mode-resonance-based surface second-harmonic generation in notched silicon waveguide metasurface
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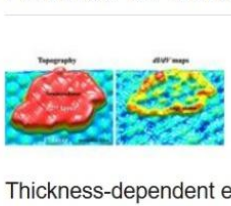
PHYSICS OF SURFACES AND INTERFACES



Thickness-dependent electronic transition and emergent edge states in few-layer SmTe(111) films
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Ultrafast nonvolatile optoelectronic memory enabled by conformal nanointerfaces
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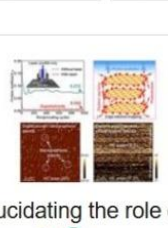

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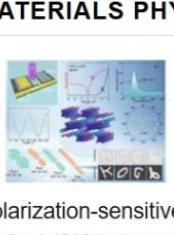

Polarization-sensitive self-powered ultraviolet detection and image encryption enabled by $RbCu_2I_3$/SiC heterostructure
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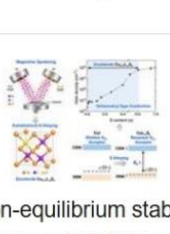

Non-equilibrium stabilization of sulfur-rich zinc blende $Cu_{1+\delta}I_{1-x}S_x$ alloys with ultra-degenerate p-type conductivity
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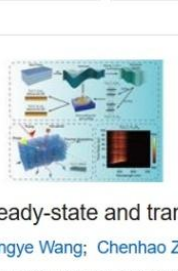

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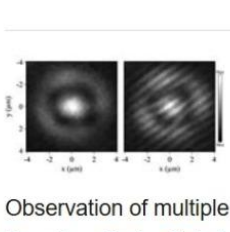

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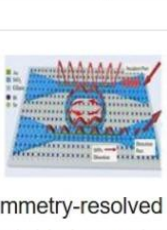

Symmetry-resolved separation of topological surface and bulk conductivity in Bi_2Se_3 using a hybrid plasmonic racetrack resonator
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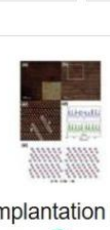

Ion implantation induced resonant states for enhanced thermoelectric response in Sb_2Te_3 thin films
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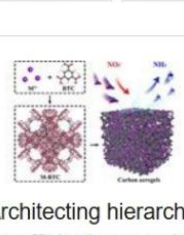

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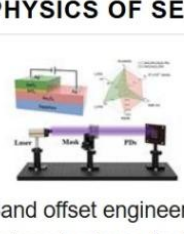

Band offset engineering and interface carrier transport optimization in GeO_2/β-Ga_2O_3 heterostructures for high-performance self-powered solar-blind photodetectors
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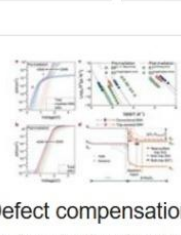

Defect compensation and recombination characteristics of NiO/β-Ga_2O_3 heterojunctions under electronic-stopping-dominated swift heavy-ion irradiation
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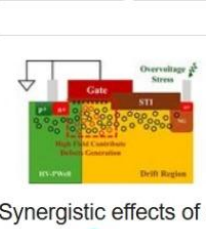

Synergistic effects of electron irradiation and overvoltage stress for LDMOS power devices
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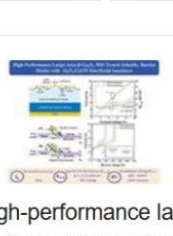

High-performance large-area β-Ga_2O_3 MIS trench Schottky barrier diodes with Al_2O_3/GaON interfacial insulators
Zifan Hong; Shubo Wei; Jialong Lin; Yu Huang; Mingkun Zhang; Feng Zhang; Weifeng Yang
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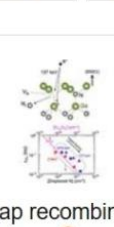

Midgap recombination centers in GaN induced by keV- to MeV-range electron-beam irradiation
K. Shima; M. Horita; J. Suda; S. Ishibashi; A. Uedono; S. F. Chichibu
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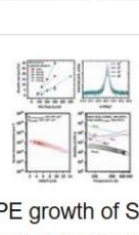

HVPE growth of Si-doped β-Ga_2O_3 on sapphire: Influence of substrate offcut on structural and electrical properties
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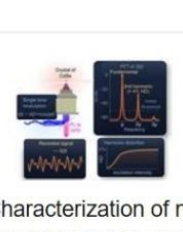

Characterization of nonlinear dynamics in semiconductors in frequency domain using modulated photoexcitation
Attia Awan; Rong Tang; Kang Zhou; Khadga Jung Karki
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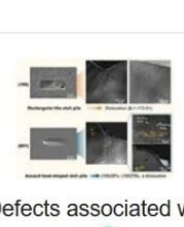

Defects associated with rectangular-like and assault boat-shaped etch pits in β-Ga_2O_3 substrates
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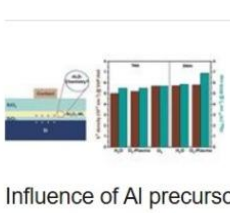

Influence of Al precursor and oxidant on the performance of ALD-Al_2O_3 ultrathin films embedded in SiO_2 for modulation acceptor doping of silicon
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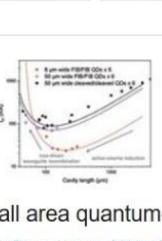

Small area quantum-dot stripe lasers with focused-ion-beam-etched mirrors
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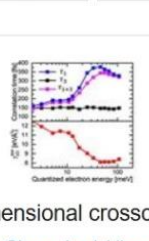

Dimensional crossover of the effective Dresselhaus coefficient in GaAs spin relaxation
Yuzo Ohno; Jun Ishihara; Satoshi Iba
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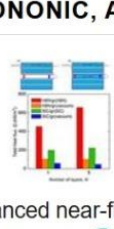
PHONONIC, ACOUSTIC, AND THERMAL PROPERTIES



Enhanced near-field thermal radiation in multilayered hBN-graphene structures without vacuum gaps
Jinsei Minaki; Kanta Umezu; Masato Suzuki; Masashi Ono; Atsushi Sakurai
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Ultra-thin resonant Fresnel metalens for achromatic high-gain acoustic focusing
Yu Lei; Jun Yi; Mengxue Zhang; Xinman Zhang; Xianghong Yan; Yaping Zhang
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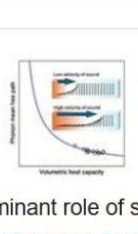

Dominant role of sound velocity in the thermal conductivity of silicate glasses
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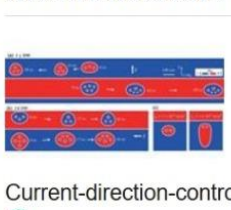
MAGNETISM AND SPINTRONICS



Current-direction-controlled dynamics of skyrmion bags guided by a domain wall barrier
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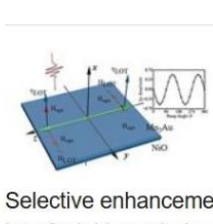

Selective enhancement of the low-frequency antiferromagnetic resonance in NiO via interfacial laser-induced optical torque
Yuwen Li; Hua Xu; Zidong Wang; Yan Liu
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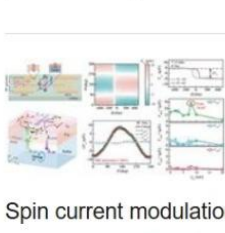

Spin current modulation of the magnetically non-resonant acoustic voltage
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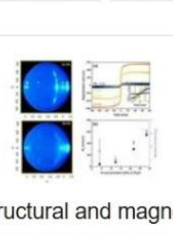

Structural and magnetic properties of Fe-doped Pt_3Sn, a potential magnetic Weyl semimetal candidate
Zach Cresswell; Javier Garcia-Barriocanal; Rishi Raj; Greg Haugstad; Yu Han Huang; K. Andre Mkhoyan; Jian-Ping Wang
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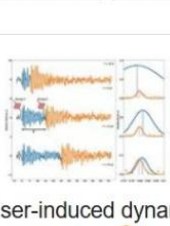

Laser-induced dynamics of the magnon spectrum probed by double-pump THz spectroscopy
P. M. P. van Kuppevelt; A. V. Kimel
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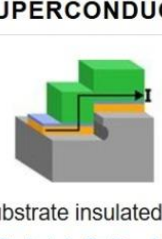
SUPERCONDUCTIVITY AND SUPERCONDUCTING ELECTRONICS



Substrate insulated Josephson junctions for superconducting quantum circuits
U. Strobel; L. Radtke; L. Kamps; J. N. Voss; J. Lisenfeld; J. Lenschen; J. N. Kämmerer; J. Luo-Hofmann; D. Reuter; S. Masis; A. V. Ustinov; H. Rotzinger
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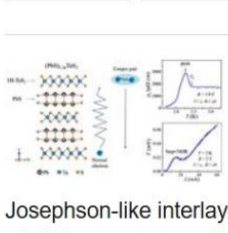

Josephson-like interlayer transport and absence of charge-density-wave signatures in the misfit-layer superconductor $(PbS)_{1.16}TaS_2$
Jie Li; Shuyang Wang; Chao An; Yongji Shi; Yonghui Zhou; Xuliang Chen; Zhaorong Yang
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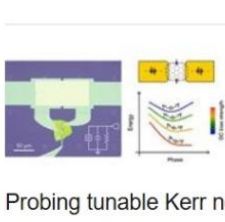

Probing tunable Kerr nonlinearity in graphene Josephson junctions
Priyanka Samanta; Joydip Sarkar; Ashish Abhraham Samuel; Madhavi Chand; Kenji Watanabe; Takashi Taniguchi; Mandar M. Deshmukh
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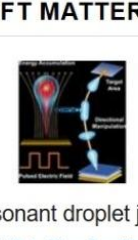
SOFT MATTER AND FLUIDS



Resonant droplet jumping under pulsed electric fields
Zekai Cai; Yuanfan Chen; Han Yan; Huai Zheng
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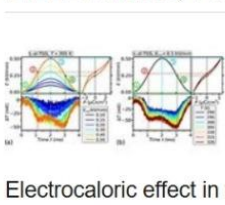
DIELECTRICS, FERROELECTRICS, AND MULTIFERROICS



Electrocaloric effect in triglycine sulfate under a strong internal bias field
J. Fischer; D. Hägele; J. Rudolph
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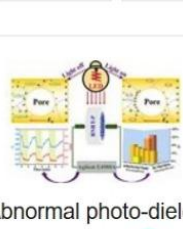

Abnormal photo-dielectric effect of porous $(Bi_{0.5}Na_{0.5})_{0.94}Ba_{0.06}TiO_3$ lead-free ceramics: Effect of pores
Tian-feng Xu; Xiao-ming Chen; Li-na Liu; Han-li Lian; Lu-lu Wang; Peng Shi; Peng Liu
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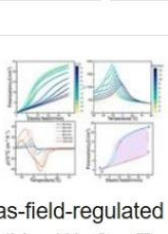

Bias-field-regulated phase evolution and pyroelectric energy harvesting in antiferroelectric $Pb(Mg_{0.5}W_{0.5}Sc_{0.1}Ta_{0.1})_{0.5}O_3$ multilayer ceramic capacitors
Ruize Hu; Meng Xie; Shiguang Yan; Fei Cao; Genshui Wang
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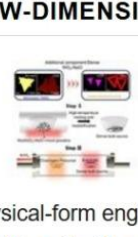
LOW-DIMENSIONAL AND TOPOLOGICAL PHYSICS



Physical-form engineering of metal precursors regulates two-dimensional TMD growth
Qiao Wang; Siwei Luo; Gencai Guo; Biwen He; Xixi Huang; Ying Zhang; Long Ren; Xiang Qi; Jianxin Zhong
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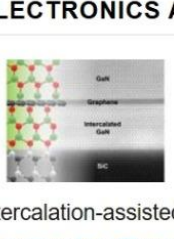
ELECTRONICS AND OPTOELECTRONICS



Intercalation-assisted remote epitaxy of GaN on epitaxial graphene
Seung Hoon Lee; Chengye Dong; Ke Wang; Brian M. Bersch; Joshua A. Robinson; Joan M. Redwing
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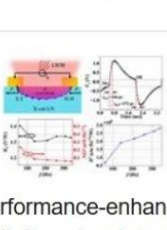

Performance-enhanced ferroelectric domain wall pyroelectric detector of X-cut thin-film $LiNbO_3$ on insulator
Xiangyu Gao; Hao Luo; Hui Xia; Jianjun Lai; Changhong Chen
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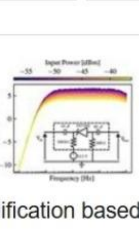

Amplification based on the noise-induced negative differential resistance in a Zener diode
Alexandre Dumont; Bertrand Reulet
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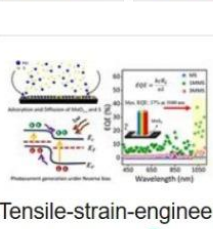

Tensile-strain-engineered electron–phonon coupling for high-performance *n*-MoS_2/*p*-Si photodetector
H. Naskath Sithara; E. Vinoth; R. Abimaheshwari; M. Navaneethan; J. Archana
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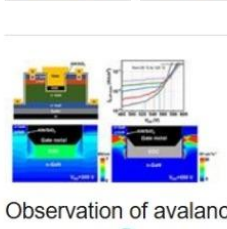

Observation of avalanche breakdown characteristics in quasi-vertical GaN-on-Si trench MOSFETs
Hui Guo; Renqiang Zhu; Yuanzhi He; Jialun Li; Xuancong Fan; Kei May Lau
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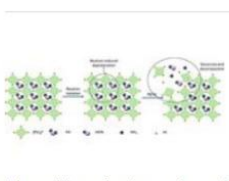

Unveiling fast neutron induced degradation mechanisms in perovskite solar cells
Baoyuan Zhang; Fang Xiang; Zhiyong Chen; Hao Xu; Yuan Li; Juntao Hu; Fan Xu; Lijuan Huang; Xiaolan Ma; Yu Li; Li Liu; Zhongli Guo; Zao Yi; Qin Hu
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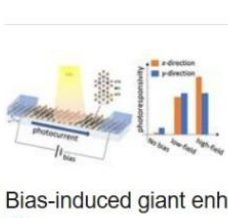

Bias-induced giant enhancement of the anisotropic photoresponse of $TaIrTe_4$ monolayer
Qilong Cui; Siqi Xu; Jinzhong Wang; Shunbo Hu; Ruixue Li; Gaofeng Xu; Fanhao Jia; Yuan Li
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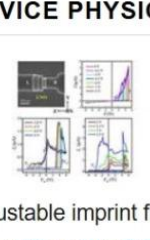
DEVICE PHYSICS



Adjustable imprint fields in $LiNbO_3$ domain wall memories
Zi Long Wang; Wen Di Zhang; An Quan Jiang
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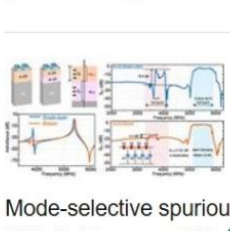

Mode-selective spurious suppression in wideband LLSAW filters with oppositely oriented $LiNbO_3$ bilayer on SiC
Boyuan Xiao; Suiei Fu; Peisen Liu; Xinchen Zhou; Jiajun Gao; Haoqin Ma; Shouren Xie; Shuai Zhang; Rui Wang; Cheng Song; Fei Zeng; Weibiao Wang; Feng Pan
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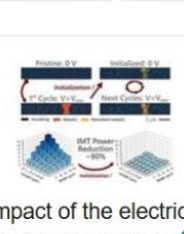

Impact of the electrical initialization step on transition voltage and power of vanadium dioxide memristors
T. Ratier; L. Lahaye; X. Zeng; J.-P. Raskin; D. Flandre
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Multifunctional artificial synapse enabled by $CuInP_2S_6$/graphene heterojunction nanosheets with fast speed and high recognition accuracy
Weiyang Wang; Gaoshuai Cao; Guanghong Yang; Weifeng Zhang; Caihong Jia
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ALD W-doped SnO_2 TFTs for indium-free BEOL electronics
Mansi Anil Patil; Devarshi Dhoble; Shivaram Kubakaddi; Mamta Raturi; Marco A Villena; Gaurav Thareja; Saurabh Lodha
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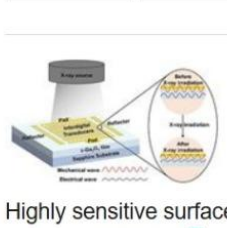

Highly sensitive surface acoustic wave x-ray detector based on piezoelectric *ε*-phase gallium oxide film
Mingming Wang; Haoran Meng; Yujia Tu; Leidang Zhou; Xing Lu; Liang Chen; Wenyu Shu; Peipei Bai; Xiao Ouyang
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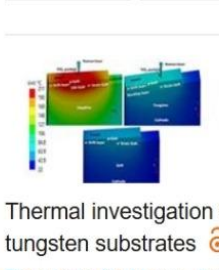

Thermal investigation of quasi-vertical and vertical GaN p–n diodes on sapphire and tungsten substrates
Pharyanshu Kachhawa; James W. Pomeroy; Enrico Brusaterra; Eldad Bahat-Treidel; Frank Brunner; Oliver Hilt; Martin Kuball; Matthew D. Smith
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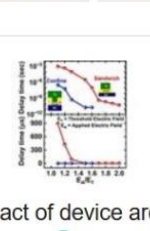

Impact of device architecture on fast and energy-efficient SET in $In_3Sb_1Te_2$ phase change memory
Salman Khan; Sakthikumaran Panneerselvam; Anbarasu Manivannan
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Sustainable breakdown in sub-micrometer E-mode GaN HEMTs: Impact of gate bias and process-driven optimization
M. Dell'Andrea; R. Fraccaroli; S. L. Longato; M. Fregolent; C. De Santi; I. Rossetto; M. Boito; A. Pirani; G. Pizzo; C. Miccoli; A. Russo; M. E. Castagna; F. Iucolano; G. Meneghesso; E. Zanoni; M. Meneghini
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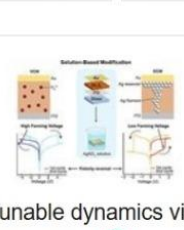

Tunable dynamics via Ag-ion modulation for deterministic polarity reversal in Sb_2S_3 memristors
Chensi Song; Zining Wang; Huanyu Chen; Hongyuan Liu; Xi Zhang; Xinsheng Liu; Jichun Zhu; Huilin Li
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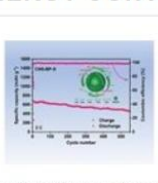
ENERGY CONVERSION AND STORAGE



Accelerating polysulfide conversion in Li–S batteries: An operando Raman study of B/P-doped $CoNi_2S_4$ spheres
Ke Xu; Shanlin Li; Huimin Sang; Xianghong Liu; Jun Zhang
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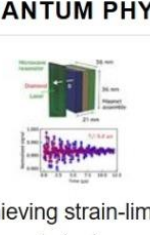
QUANTUM PHYSICS AND TECHNOLOGY



Achieving strain-limited ensemble dephasing times in solid-state quantum sensor with a compact single magnet assembly
Yuta Masuyama; Chikara Shinei; Haruki Tanaka; Hiroshi Abe; Takashi Taniguchi; Masashi Miyakawa; Tokuyuki Teraji; Akihiro Kuwahata
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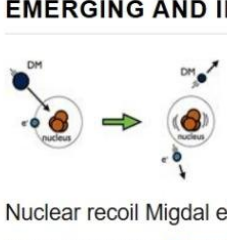
EMERGING AND INTERDISCIPLINARY APPLIED PHYSICS



Nuclear recoil Migdal effect in liquid xenon dark matter experiments
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Jingke Xu; Jeonghwa Kim; Duncan Adams; Brian G. Lenardo; W. Hugh Lippincott; Rouven Essig
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ERRATA

Erratum: "Two-and-a-half decades of progress in mid-infrared AlGaN/GaN inter-subband light emitters" [Appl. Phys. Lett. **129**, 060501 (2026)]
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