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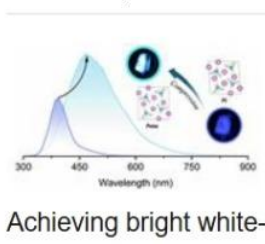
In this Issue

OPTICS, PHOTONICS, AND ELECTROMAGNETISM
PHYSICS OF SURFACES AND INTERFACES
MATERIALS PHYSICS
PHYSICS OF SEMICONDUCTORS
PHONONIC, ACOUSTIC, AND THERMAL PROPERTIES
MAGNETISM AND SPINTRONICS
SOFT MATTER AND FLUIDS
DIELECTRICS, FERROELECTRICS, AND MULTIFERROICS
ELECTRONICS AND OPTOELECTRONICS
DEVICE PHYSICS
BIOIMAGING, BIOSENSORS, AND MEDICAL PHYSICS

OPTICS, PHOTONICS, AND ELECTROMAGNETISM



Achieving bright white-light emission in all-inorganic undoped copper(I) halides via pressure-induced multiple self-trapped states

Yucheng Deng; Jingze Du; Jingtian Wang; Feng Wang; Xihan Yu; Guanjun Xiao; Bo Zou

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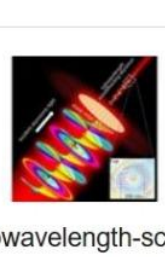

Subwavelength-scale non-diffracting optical polarization skyrmions

Chaoheng Guo; Guangsen Guo; Hui Zhao; Junhui Jia; Yanwen Hu; Shenhe Fu

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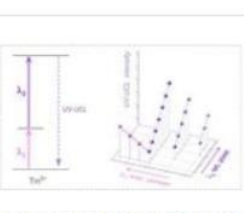

Decoupling excitation pathways: A dual-wavelength strategy for ultraviolet upconversion in Tm^{3+} systems

Bingbing Yang; Jin Chen; Yanfang Sun; Feng Liu; Xiao-jun Wang; Yichun Liu

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Robust orbital angular momentum transfer using printed diffractive optics

Beatriz Morales-Cruzado; Benjamin Perez-Garcia; Francisco G. Pérez Gutiérrez; Carmelo Rosales-Guzmán

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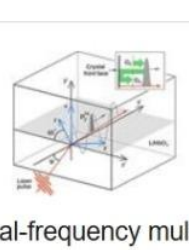

Dual-frequency multicycle terahertz generation in virtual PPLN

A. I. Shugurov; M. V. Sarafanova; O. V. Meshkov; S. B. Bodrov; M. I. Bakunov

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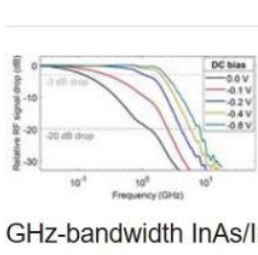

GHz-bandwidth InAs/InAsSbP barrier infrared detectors for the 3.0–3.7 *μ*m spectral region operating at room temperature

Grzegorz Gomółka; Krzysztof Kłos; Jarosław Pawluczyk; Maciej Kowalczyk; Piotr Martyniuk; Łukasz A. Sterczewski

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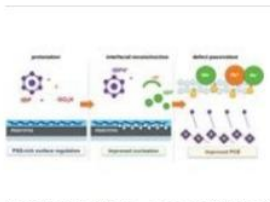
PHYSICS OF SURFACES AND INTERFACES



Protonation-associated regulation of buried PEDOT:PSS interfaces enables improved performance in inverted perovskite solar cells

Yawen Gu; Xiaohui Zang; Huan Yu; Yu Zhang; Chaonan Wang; Meifeng Xu

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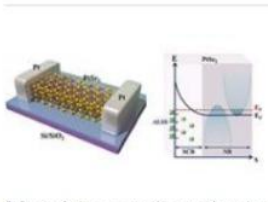

Metal-to-semiconductor transition and enhanced photoconductivity in PtSe$_2$ nanoflakes

Pushpa Selvarasu; Hemanth Kumar Bangolla; Raman Sankar; Rajeshkumar Ulaganathan; Kalaivanan Raju; Yu-Chiang Lin; Kuei-Yi Lee; Ruei-San Chen

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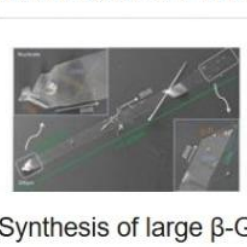

Synthesis of large β-Ga$_2$O$_3$ single-crystal nanobelt

Haifeng Chen; Chunling Chen; Zhihong Wei; Yifan Jia; Xiangtai Liu; Yue Hao

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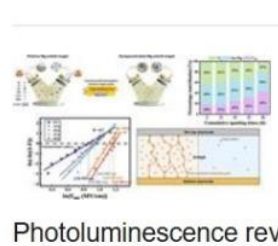

Photoluminescence reveals point-defect evolution associated with dielectric reliability in ferroelectric ZnMgO thin films

Fuhang Wu; Wenjin Zhao; Dayu Zhou; Yongsong Zhao; Jiahao Ren; Jingyi Xiao; Mengqi Liu; Decun Shi

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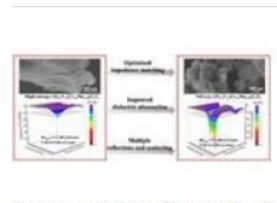

Synergistic effects for improving electromagnetic wave absorption in high-entropy MXene heterostructures

J. B. Shen; Q. Chen; L. L. Zhu; G. C. Zhao; S. Lin; R. H. Wei; W. H. Song; Y. P. Sun; X. B. Zhu

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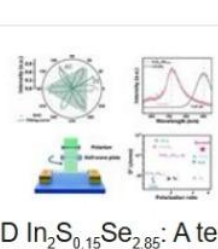

2D In$_2$S$_{0.15}$Se$_{2.85}$: A ternary alloy with strong in-plane anisotropy for polarization-sensitive optoelectronics

Bo Tang; Zhixin Luo; Zoucheng Pu; Jianni Chen; Yuan Pan; Wei Gao; Zhaoqiang Zheng; Tao Zheng; Mengmeng Yang

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Synergistic engineering of electronic traps and free volume in fluorinated polynorbornene for high-temperature capacitive energy storage

Bin Zhang; Neng Qin; Yucheng Zhu; Xiaoming Chen; Dawei Wang; Xiaojie Lou

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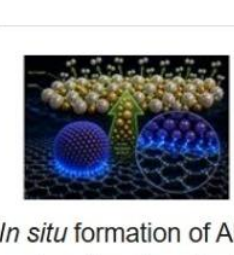

In situ formation of Al$_3$Ti from the TiC@graphene heterojunction for catalytic enhancement and cycling deactivation of NaAlH$_4$

Meng Zhang; Zhijie Cao; Yafeng Zhang; Feng Sun; Yuxiang Yan

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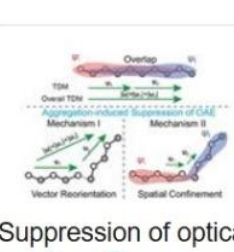

Suppression of optical absorption and emission by aggregation-induced structural bending

Shifeng Qian; Wanting Zhang; Chengrui Jiang; Xiping Shi; Xianghao Sun; Xiaowei Sheng

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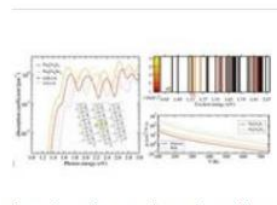

In-depth understanding of the promising photovoltaic performance for the intriguing Na$_2$Cu$_4$Z$_3$ (Z = S and Se) chalcogenide

Sin-Hyok Jon; Songchol Hong; Un-Gi Jong

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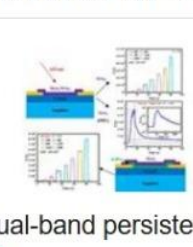
PHYSICS OF SEMICONDUCTORS



Dual-band persistent photoconductive effect of GaN-based van der Waals heterojunctions

Xiurui Lv; Guijuan Zhao; Bangyao Mao; Guipeng Liu; Jianhong Yang

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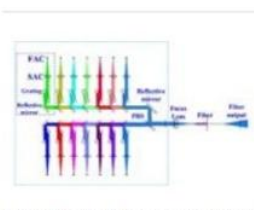

High brightness narrow linewidth blue laser diodes with fiber output

Lanping Zhang; Junjie Dai; Quanwei Jiang; Linhui Guo; Hao Tan; Tao Li; Songxin Gao; Guobin Fan

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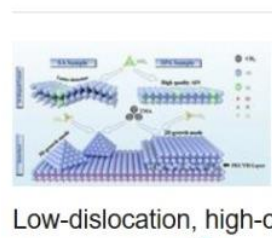

Low-dislocation, high-crystal-quality Si-doped AlN on 6-inch sapphire via plasma-seeded pulsed epitaxy

Bangyao Mao; Ming Li; Yi Yang; Zhang Wen; Weizhe Bi; Yuxuan Zhang; Yanbin Liu; Songquan Yang; Mingchao Yang; Weihua Liu; Chuanyu Han; Li Geng

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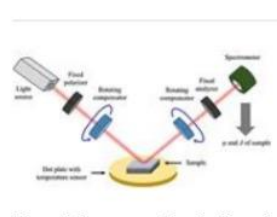

Real-time optical discrimination of competing defect pathways in a-IGZO heterostructures by *in situ* spectroscopic ellipsometry

Junghoon Yang; Jongkyoon Park; Su-Hyeong Lee; Won Chegal; Soosang Chae

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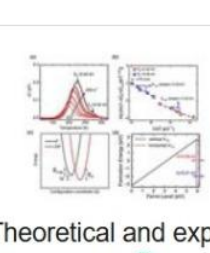

Theoretical and experimental identification of Si DX centers and deep levels in n-type Al$_{0.85}$Ga$_{0.15}$N

Dongseop Lee; Yujie Liu; Andrew A. Alleman; Steven A. Ringel; Emmanouil Kioupakis; Aaron R. Arehart

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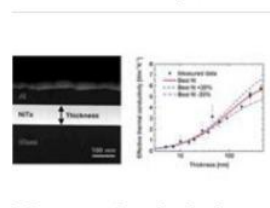
PHONONIC, ACOUSTIC, AND THERMAL PROPERTIES



Thermophysical characterization of amorphous NiTa thin films for heat-assisted magnetic recording using frequency-domain thermoreflectance

Yasuaki Ikeda; Yuki Akura; Ryota Takechi; Yukiko K. Takahashi; Jun Hirotani

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Tunable local sensitivity in ultrasound waveguides via selective tapering: Newtonian viscosity sensing

Shashank Sisodia; Krishnan Balasubramaniam

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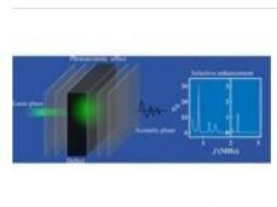

Resonant MHz ultrasonic waves from a one-dimensional phononic crystals

Shulong Hong; Xinya Yao; Xiaopeng Xue; Xiangkun Piao; Yongyuan Jiang; Fengfeng Yao; Bingbing Cheng; Yanbo Pei

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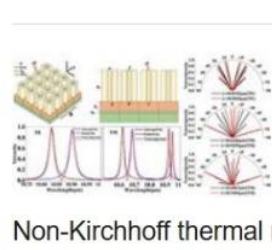

Non-Kirchhoff thermal radiation by cross-groove fan-shaped column array structure driven by magneto-optical phenomenon

Jianwei Xu; Bo Wang; Xiaoqiao Wang; Hongzhan Liu

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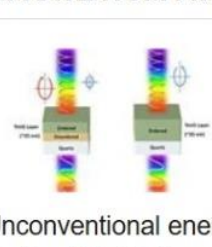
MAGNETISM AND SPINTRONICS



Unconventional energy-selective magneto-optical polarity reversal in thermal-mismatch-strained TmIG films

Wei-Hsiang Liao; Yu-Hui Xue; Pin-Qian Yang; Yu-Ying Chang; Yao Zhang; Simon Granville; Yu-Cheng Shao; Hua-Shu Hsu

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Six-state manipulation of Mn$_3$Sn via spin–orbit torque

Hongbo Zhao; Yan Liu

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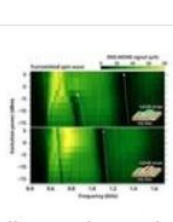

Nonlinear dynamics in magnonic Fabry–Pérot resonators: Low-power neuron-like activation and transmission suppression

Anton Lutsenko; Kevin G. Fripp; Lukáš Flajšman; Andrey V. Shytov; Volodymyr V. Kruglyak; Sebastiaan van Dijken

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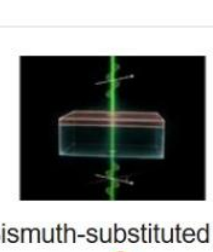

Bismuth-substituted lutetium iron garnet films with giant visible-range magneto-optical sensitivity

Megan H. Dransfield; Lukáš Flajšman; Matthijs H. J. de Jong; Lars Peeters; Rhodri Mansell; Sebastiaan van Dijken; Laure Mercier de Lépinay

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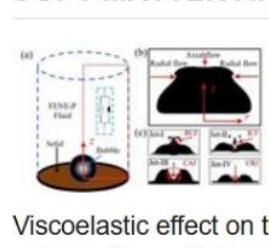

Viscoelastic effect on the dynamics of high-speed needle jets generated during bubble collapse in proximity to a solid boundary

Hao-Dong Wu; Yu-Han Wu; Xin-Xin Shen; Xin-Liang Zhang; Bo Li; Jia-Yue Yang; Linhua Liu; Gao-Ming Xiang

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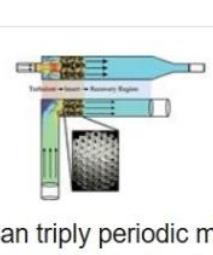

Can triply periodic minimal surface inserts reduce turbulence-induced effects in high-Reynolds-number internal flows?

Quentin L. Hopman; Kamiel Politiek; Nicholas P. Waterson; Pablo D. Druetta; Anastasiia O. Krushynska

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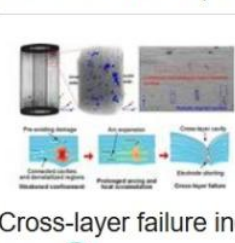
DIELECTRICS, FERROELECTRICS, AND MULTIFERROICS



Cross-layer failure induced by accumulated self-healing damage in multilayer metallized films

Yujing Tong; Geng Chen; Chong Zheng; Ruiqiang Wen; Xuke Gao; Yahui Zhang; Cong Wang; Youping Tu

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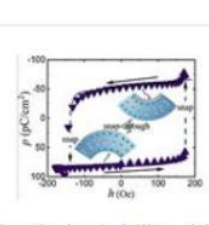

Elastic-instability-driven nonvolatile multiferroic-like coupling

Kai Tan; Rong Jia; Lingling Chen; Zonghao Li; Shengyou Yang; Qian Deng

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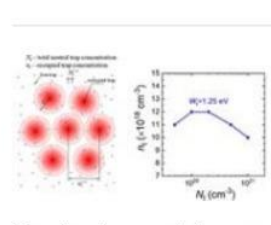

Coulomb repulsion and Wigner glass formation of localized electrons in HfO$_2$

V. A. Gritsenko; M. M. Mahmoodian; A. A. Gismatulin; Mehrdad M. Mahmoodian; Yu. N. Novikov; D. E. Temnov; E. A. Volgina; A. K. Markelova; V. Sh. Aliev; M. V. Entin

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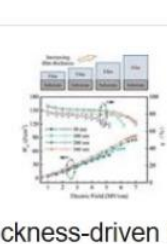

Thickness-driven structure evolution and energy storage performance in epitaxial 0.88BaTiO$_3$-0.12Bi(Mg$_{0.5}$Ti$_{0.5}$)O$_3$ dielectric film

Yupeng Liu; Tian-Yi Hu; Yiqin Lu; Qiuyang Han; Lu Lu; Ming Liu; Chunrui Ma; Shao-Bo Mi

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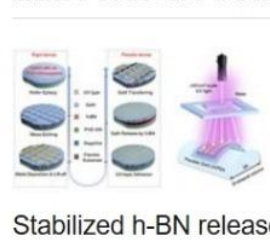
ELECTRONICS AND OPTOELECTRONICS



Stabilized h-BN release layer on PVD-AlN/sapphire template for high-performance GaN-based flexible weak-light photodetectors

Dengrui Zhao; Haochen Zhang; Dong Wei; Li Zhang; Xin Zhou; Tiwei Chen; Gaofu Guo; Heng Yu; Yu Hu; Xiaodong Zhang; Haiding Sun; Zhongming Zeng; Baoshun Zhang; Xianqi Dai

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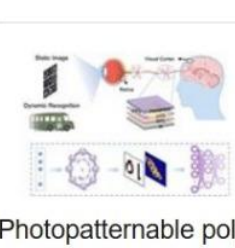

Photopatternable polypyrrole electrode-based organic optical synaptic transistor for reservoir computing

Xinyi Liu; Wei Dai; Ting Zhang; Shuyan Liu; Hui Fan; Pengfei Zhao; Xue Chen; Yilin Song; Su-Ting Han; Ye Zhou

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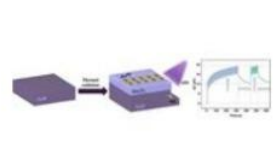

Thermally oxidized gallium nitride for photo-neuromorphic devices

Xuening Fan; Mingxi Liu; Liang Guo; Jianyuan Wang; Bingcheng Luo

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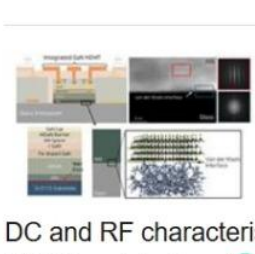

DC and RF characteristics of GaN HEMTs on glass substrates with a van der Waals AlN/glass interface

Taeyoung Han; Jaeyong Lee; Juno Bae; Gwonman Noh; Gyuhyung Lee; Changkun Park; Geonwook Yoo

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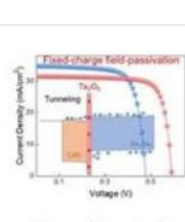

Unveiling fixed charge field-effect passivation at the CdS/Sb$_2$Se$_3$ interface for minimized voltage loss

Ruijin Hu; Zhiyang Ye; Miao Gong; Xiangdong Meng; Yunqing Cao; Xiaolin Sun; Junzhuan Wang; Shaobo Zhang; Jianning Ding

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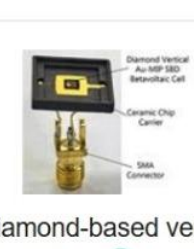

Diamond-based vertical Schottky betavoltaic cell for extreme environment energy harvesting

Libin Wang; Shanxue Xi; Xin Zhao; Xueni Geng; Zhihai Ma; Zhenyu Wang; Chuanfeng Xiang; Zhicong Li; Haijun Li; Chunzhi Zhou; Yiyun Zhang; Xiaoyan Yi; Lin Wen; Junxi Wang; Jinmin Li

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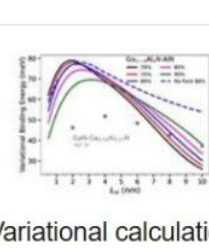

Variational calculations of exciton binding energies in Ga$_{1-x}$Al$_x$N–AlN quantum wells emitting deep ultraviolet light

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Broadband electroluminescence from infrared to ultraviolet in p-hBN/nAlGaN heterojunction

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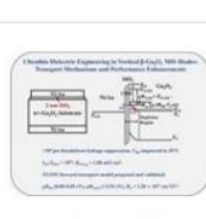

Forward current transport mechanism of the vertical β-Ga$_2$O$_3$ diode with a 1.6 nm SiO$_2$ interlayer on Sn-doped ($\bar{2}01$) substrates

Xiangxin Zhang; Yibo Wang; Xiaole Jia; Cizhe Fang; Haodong Hu; Hongrui Zhang; Yan Liu; Bochang Li; Yue Hao; Genquan Han

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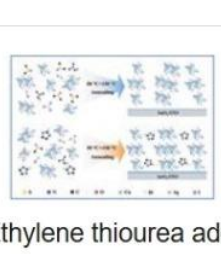

Ethylene thiourea additive engineering for high-performance and stable lead-free Cu$_2$AgBiI$_6$ photodetectors

Luping Feng; Huiping Gao; Ruolan Zhang; Shengxu Sun; Gencai Pan; Zhenlong Zhang; Miao Kang; Yanli Mao

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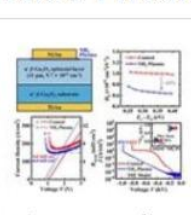
DEVICE PHYSICS



Low turn-on voltage and improved interface properties of β-Ga$_2$O$_3$ Schottky barrier diodes with NH$_3$ plasma treatment

Haodong Hu; Yibo Wang; Xiaole Jia; Cizhe Fang; Hongrui Zhang; Bochang Li; Yan Liu; Yue Hao; Genquan Han

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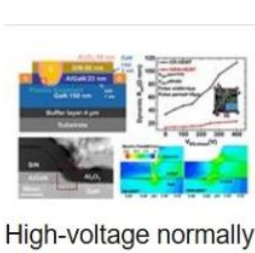

High-voltage normally off GaN-based MIS-HEMTs featuring rounded gate sidewalls

Qingyuan Zuo; Xin Xia; Huolin Huang; Yun Lei; Ze Zhang; Xinyang Wang; Jianyu Zhao; Kaiming Ma; Rong Han; Jianxun Dai; Yung C. Liang

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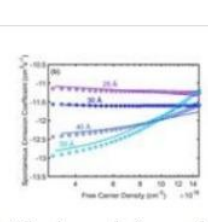

Unified modeling of excitonic emission and internal quantum efficiency in III-nitride quantum wells based on the effective bond-orbital model

Fu-Chen Hsiao; Jonathan J. Wierer, Jr.; Fred Kish

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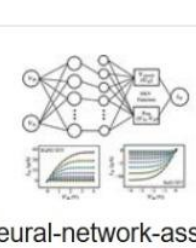

Neural-network-assisted EKV compact modeling for complementary oxide thin-film transistors

Mingyu Zhuang; Zhiyuan Wang; Baochuan Liu; Jiawei Zhang; Qian Xin; Aimin Song

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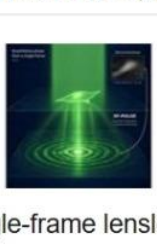

Single-frame lensless phase retrieval using learned sensor plane initialization

Igor Shevkunov; Meenakshisundaram Kandhavelu; Ramesh Thiyagarajan; Karen Eguiazarian

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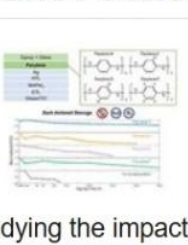

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Interference-induced three-beam quantum squeezing enhancement

Yanfen Zhou; Xiaochun Li; Yanbo Lou; Jiabin Wang; Shengshuai Liu; Jietai Jing

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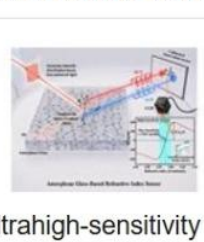

Ultrahigh-sensitivity optical spin Hall effect sensor based on bismuth-doped amorphous glass in the visible light region

Wang Luo; Fuyu Li; Chuan Wen; Hongxue Wang; Zhe Weng; Fan Gao; Ziteng Li; Yuanxun Li

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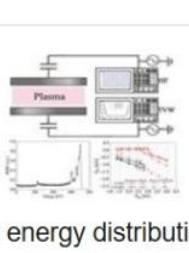

Ion energy distribution transitions in capacitive discharges caused by abnormal dc self-bias formation induced by very-low-frequency voltage waveform tailoring

Chan Feng; De-Qi Wen; Jon Tomas Gudmundsson; John P. Verboncoeur; Julian Schulze; You-Nian Wang

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