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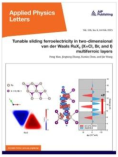
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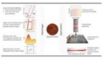
PERSPECTIVES



Future roles of solid-state quantum dot light sources ✓

In Special Collection: Hybrid and Heterogeneous Integration in Photonics: From Physics to Device Applications

Heming Huang; Omar Alkhazragi; Di Liang; Frédéric Grillot

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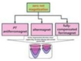

Valley polarization in two-dimensional zero-net-magnetization magnets EP ✓

San-Dong Guo

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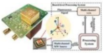

A highly integrated three-axis vector diamond quantum magnetometer with a compact electrical package ✓

Xiao Peng; Fei Xie; Yaochen Zhu; Xin Luo; Qihui Liu; Dan Wang; Yuqiang Hu; Jiachen Han; Lingyun Li; Jianping Liu; Hao Chen; Jiangong Cheng; Zhenyu Wu

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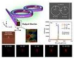

Polarization selectivity in single-mode photonic molecule lasers ✓

Media Abbasi; Leila Hajshahvaladi; Gholam-Mohammad Parsanasab

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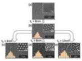

Plasmonic properties of gold nanoparticle arrays fabricated using a sequential dewetting process

Gavin Farmer; Dmitrii Shymkiv; Arkadii Krokhin; Chris Littler; A. J. Syllaios; Usha Philipose

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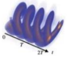

Elegant high-order harmonic vortices generation

C. Granados; Bikash K. Das; Wenlong Gao; M. F. Ciappina

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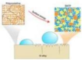
SURFACES AND INTERFACES



Phase transition induced inherent superhydrophobicity on Al alloys surface via femtosecond laser multi-scanning process

Dandan Yan; Caixue Xu; Tingting Zou; Hao Zhang; Jiapei Xu; Lin Li; Linkun Cui; Bo Zhang; Jianjun Yang

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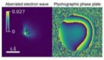

Aberration measurement by electron ptychography and consistency among different algorithms

Tizian Lorenzen; Benedikt Diederichs; Charles Otieno Ogolla; Benjamin Butz; Knut Müller-Caspary

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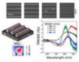
METASURFACES AND METAMATERIALS



Tailoring transverse magneto-optical Kerr effect enhancement in Mie-resonant nanowire-based metasurfaces

K. A. Mamian; V. V. Popov; A. Yu. Frolov; A. A. Fedyanin

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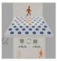

Phase-change metasurfaces for reconfigurable image processing

Tingting Liu; Jumin Qiu; Tianbao Yu; Qiegen Liu; Jie Li; Shuyuan Xiao

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Strong coupling of excitons in a two-dimensional atomic crystal with quasi-bound state in the continuum supported by a single nanoparticle

Qi Ding; Xun Zhou; Peng Xie; Shiyu Shen; Ling Yue; Hong Zhang; Wei Wang

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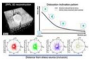

On the dependence of internal stress on dislocation inclination pattern in HVPE-GaN substrates

Fei-Fei Zhou; Zhi-Qiao Li; Miao Liu; Yong-Xin Qiu; Ting-Ting Yin; Yu Xu; Yu-Min Zhang; Mu-Tong Niu; De-Min Cai; Jian-Feng Wang; Ke Xu

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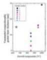

Impact of growth temperature on heterostructure interface steepness in ultraviolet-B AlGaN-based laser diodes

Takumu Saito; Rintaro Miyake; Ryoya Yamada; Yoshinori Imoto; Shundai Maruyama; Yusuke Sasaki; Shogo Karino; Sho Iwayama; Hideto Miyake; Koichi Naniwae; Satoshi Kamiyama; Tetsuya Takeuchi; Motoaki Iwaya

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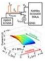

Characterizing self-heating dynamics using cyclostationary measurements

SangHoon Shin; Muhammad Masuduzzaman; Muhammad Ashraful Alam

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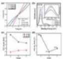

Effects of the RF bias power of ICP etching on the electrical properties of n-type Ohmic contact on high-Al-fraction AlGaN

X. Q. Guo; F. J. Xu; J. Lang; J. M. Wang; L. S. Zhang; C. Ji; C. Z. Ji; Z. Y. Zhang; F. Y. Tan; Y. Wu; X. N. Kang; X. L. Yang; N. Tang; X. Q. Wang; W. K. Ge; B. Shen

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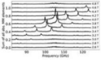

High-frequency/high-field electron paramagnetic resonance generalized spectroscopic ellipsometry characterization of Cr^{3+} in β-Ga_2O_3

In Special Collection: Defects in Solids for Quantum Technologies

Viktor Rindert; Zbigniew Galazka; Mathias Schubert; Vanya Darakchieva

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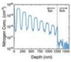

Growth of nitrogen-doped (010) β-Ga_2O_3 by plasma-assisted molecular beam epitaxy using an O_2/N_2 gas mixture

Steve Rebollo; Yizheng Liu; Carl Peterson; Sriram Krishnamoorthy; James S. Speck

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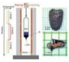

High-yield growth of high-quality cubic BAs single crystals using the Bridgman method

Wenhao Liu; Pawan Koirala; Evan R. Glaser; Hanlin Wu; Aswin Kondusamy; Nikhil Dhale; Mahammed S. Patel; Sam White; James C. Culbertson; Jaime A. Freitas, Jr.; Bing Lv

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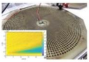

Cyclically symmetric radially self-similar phononic pseudocrystal isolator for broadband, ultrasonic vibration bandstop filtering

S. Hales Swift; Ihab F. El-Kady; Rick A. Kellogg; Dale E. Cillessen; Michael H. Denison

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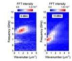
MAGNETICS AND SPINTRONICS



Nonlinear response of hybrid magnons in synthetic antiferromagnets

Daiju Hayashi; Yoichi Shiota; Mujin You; Albert Min Gyu Park; Kab-Jin Kim; Hideki Narita; Ryusuke Hisatomi; Shutaro Karube; Teruo Ono

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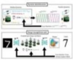

Gradient-based optimization of spintronic devices

Y. Imai; S. Liu; N. Akashi; K. Nakajima

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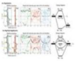

Band engineering for large perpendicular magnetocrystalline anisotropy and low magnetic Gilbert damping constant by anion substitution at Fe/MgO interface

Y.-N. Apriati; K. Nawa; K. Nakamura

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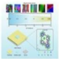

High-frequency magnetic properties of modified Cu–Ni 18H ferrites with low magnetic loss up to 6 GHz for 5G communications

Zhibiao Xu; Guowu Wang; Sha Zhang; Jinghao Cui; Longhui Xiong; Donglin He; Yu Liu; Tao Wang

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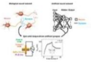

Modulation of nonlinearity and asymmetry in a spin–orbit torque driven artificial synapse

Arun Jacob Mathew; John Rex Mohan; Chisato Yamanaka; Kazuki Shintaku; Mojtaba Mohammadi; Hiroyuki Awano; Hironori Asada; Yasuhiro Fukuma

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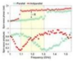

Magnonic Fabry–Pérot resonators as programmable phase shifters

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

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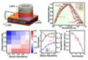

Piezo-strain induced nonvolatile control of magnetic skyrmion nonlinear dynamics for artificial synapse device applications

Jiawei Wang; Xin Wang; Yiting Li; Guoliang Yu; Yang Qiu; Yan Li; Mingmin Zhu; Hao-Miao Zhou

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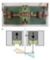
SUPERCONDUCTIVITY AND SUPERCONDUCTING ELECTRONICS



A high-T_c superconducting diode with large current carrying capacity

J. M. Brooks; R. Mataira; T. Simpson; R. A. Badcock; C. W. Bumby

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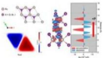
DIELECTRICS, FERROELECTRICS, AND MULTIFERROICS



Tunable sliding ferroelectricity in two-dimensional van der Waals RuX_2 (X = Cl, Br, and I) multiferroic layers

Peng Han; Jingtong Zhang; Xumin Chen; Jie Wang

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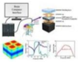

Preparation and simulation of high-frequency lead-free NBBT/epoxy 1–3 piezoelectric composites with high electromechanical coupling characteristics

Lin Li; Jinpeng Ma; Xun Zhou; Yaqi Liu; Yanxue Tang; Feifei Wang; Qiaozhen Zhang; Qingwen Yue; Di Lin; Haosu Luo; Xiangyong Zhao

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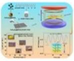

Retainable large magnetoelectric coupling in $BiFeO_3$@$CoFe_2O_4$ core-shell nanoparticle embedded P(VDF-TrFE) matrix

Chenyang Wang; Lingfang Xu; Xiang Lv; Yalong Ge; Ruilong Wang; Shiheng Liang; Haibo Xiao; Changping Yang

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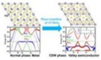
LOW-DIMENSIONAL AND TOPOLOGICAL MATERIALS



Valley-contrasting physics, topological bands, and Dirac cone in the charge density wave phase of a 1*T*-MoS_2 monolayer

Lv Qiu; Chunhua Zeng; Xiaobo Feng; Lin Zhuang; Wuming Liu; Zhaoming Fu

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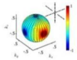

Strain-induced Kramers–Weyl phase in III–V zinc blende systems EP ✓

Denis Aglagul; Jian Shi

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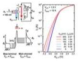
DEVICE PHYSICS AND NANOTECHNOLOGY



Electron thermometry for Si MOS inversion layer using proximity nano-transistor and its application to Joule-heating experiment ✓

Hossain Md Nayem; Masahiro Hori; Katsuhiko Nishiguchi; Yukinori Ono

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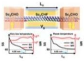

Realizing sub-6-nm-channel high-performance spin field-effect transistors in lateral $Sc_2CHO/Sc_2CHF/Sc_2CHO$ heterojunctions EP ✓

Shao-Xian Wang; Ya-Qi Kong; Ming-Lang Wang; Ming-Zhi Wei; Chuan-Kui Wang; Guang-Ping Zhang

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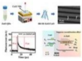

Ultrafast 0D/1D ZnO/CuO photodetector in nanosecond scale by engineering the type-II heterostructure ✓

Yani Li; Heyuan Zheng; Jinhua Li; Kaixi Shi; Xuan Fang; Yunping Lan; Zhenfeng Jiang

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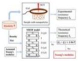
BIOPHYSICS, BIOIMAGING, AND BIOSENSORS



A multi-degree-of-freedom model-based method for Young's modulus determination of soft tissue by resonance spectroscopy ✓

Yujie Hu; Kecai Lu; Zhuangyu Li; Daming Zhou

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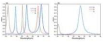

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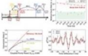

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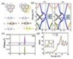

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