TOPICAL REVIEW — Quantum computation and quantum simulation

060311 Quantum computation and simulation with vibrational modes of trapped ions 
Wentao Chen, Jaren Gan, Jing-Ning Zhang, Dzmitry Matuskevich and Kihwan Kim

060312 Quantum computation and error correction based on continuous variable cluster states 
Shuhong Hao, Xiaowei Deng, Yang Liu, Xiaolong Su, Changde Xie and Kunchi Peng

SPECIAL TOPIC — Quantum computation and quantum simulation

060313 Fabrication of microresonators by using photoresist developer as etchant 
Shu-Qing Song, Jian-Wen Xu, Zhi-Kun Han, Xiao-Wei Yang, Yu-Ting Sun, Xiao-Han Wang, Shao-Xiong Li, Dong Lan, Jie Zhao, Xin-Sheng Tan and Yang Yu

060314 Interaction induced non-reciprocal three-level quantum transport 
Sai Li, Tao Chen, Jia Liu and Zheng-Yuan Xue

060315 Fine-grained uncertainty relation for open quantum system 
Shang-Bin Han, Shuai-Jie Li, Jing-Jun Zhang and Jun Feng

068503 Fabrication and characterization of all-Nb lumped-element Josephson parametric amplifiers 
Hang Xue, Zhirong Lin, Wenbing Jiang, Zhengqi Niu, Kuang Liu, Wei Peng and Zhen Wang

068504 An easily-prepared impedance matched Josephson parametric amplifier 
Ya-Peng Lu, Quan Zuo, Jia-Zheng Pan, Jun-Liang Jiang, Xing-Yu Wei, Zi-Shuo Li, Wen-Qu Xu, Kai-Xuan Zhang, Ting-Ting Guo, Shuo Wang, Chun-Hai Cao, Wei-Wei Xu, Guo-Zhu Sun and Pei-Heng Wu

RAPID COMMUNICATION

067403 Unusual electronic structure of Dirac material BaMnSb$_2$ revealed by angle-resolved photoemission spectroscopy 
Hongtao Rong, Liqin Zhou, Junbao He, Chunyao Song, Yu Xu, Yongqing Cai, Cong Li, Qingyan Wang, Lin Zhao, Guodong Liu, Zuyan Xu, Genfu Chen, Hongming Weng and Xingjiang Zhou

067502 Powder x-ray diffraction and Rietveld analysis of (C$_2$H$_5$NH$_3$)$_2$CuCl$_4$  
Yi Liu, Jun Shen, Zhuming Lu, Baogen Shen and Liqin Yan

GENERAL

060201 Exact explicit solitary wave and periodic wave solutions and their dynamical behaviors for the Schamel–Korteweg–de Vries equation 
Bin He and Qing Meng

(Continued on the Bookbinding Inside Back Cover)
060202 Soliton, breather, and rogue wave solutions for solving the nonlinear Schrödinger equation using a deep learning method with physical constraints
Jun-Cai Pu, Jun Li and Yong Chen

060203 $\mathcal{H}_\infty$ state estimation for Markov jump neural networks with transition probabilities subject to the persistent dwell-time switching rule
Hao Shen, Jia-Cheng Wu, Jian-Wei Xia and Zhen Wang

060204 Effect of symmetrical frequency chirp on pair production
Kun Wang, Xuehua Hu, Sayipjamal Dulat and Bai-Song Xie

060301 Entanglement properties of GHZ and W superposition state and its decayed states
Xin-Feng Jin, Li-Zhen Jiang and Xiao-Yu Chen

060302 Lie transformation on shortcut to adiabaticity in parametric driving quantum systems
Jian-Jian Cheng, Yao Du and Lin Zhang

060303 Controlled quantum teleportation of an unknown single-qutrit state in noisy channels with memory
Shexiang Jiang, Bao Zhao and Xingzhu Liang

060304 Continuous-variable quantum key distribution based on photon addition operation
Xiao-Ting Chen, Lu-Ping Zhang, Shou-Kang Chang, Huan Zhang and Li-Yun Hu

060305 Practical decoy-state BB84 quantum key distribution with quantum memory
Xian-Ke Li, Xiao-Qian Song, Qi-Wei Guo, Xing-Yu Zhou and Qin Wang

060306 Superfluid states in $\alpha$--$T_3$ lattice
Yu-Rong Wu and Yi-Cai Zhang

060307 Dynamical stability of dipolar condensate in a parametrically modulated one-dimensional optical lattice
Ji-Li Ma, Xiao-Xun Li, Rui-Jin Cheng, Ai-Xia Zhang and Ju-Kui Xue

060308 Transport properties of Tl$_2$Ba$_2$CaCu$_2$O$_8$ microbridges on a low-angle step substrate
Sheng-Hui Zhao, Wang-Hao Tian, Xue-Lian Liang, Ze He, Pei Wang, Lu Ji, Ming He and Hua-Bing Wang

060309 Wave packet dynamics of nonlinear Gazeau–Klauder coherent states of a position-dependent mass system in a Coulomb-like potential
Faustin Blaise Migueu, Mercel Vubangsi, Martin Tchoffo and Lukong Cornelius Fai

060310 Dynamics of bright soliton in a spin–orbit coupled spin-1 Bose–Einstein condensate
Hui Guo, Xu Qiu, Yan Ma, Hai-Feng Jiang and Xiao-Fei Zhang

060501 Stationary response of colored noise excited vibro-impact system
Jian-Long Wang, Xiao-Lei Leng and Xian-Bin Liu

060502 Collective stochastic resonance behaviors of two coupled harmonic oscillators driven by dichotomous fluctuating frequency
Lei Jiang, Li Lai, Tao Yu and Maokang Luo
060503 Time-varying coupling-induced logical stochastic resonance in a periodically driven coupled bistable system
Yuangen Yao

060504 Dynamics of high-frequency modulated waves in a nonlinear dissipative continuous bi-inductance network
S M Ngounou and F B Pelap

060505 Behaviors of thermalization for the Fermi–Pasta–Ulam–Tsingou system with small number of particles
Zhenjun Zhang, Jing Kang and Wen Wen

060506 Complex network perspective on modelling chaotic systems via machine learning
Tong-Feng Weng, Xin-Xin Cao and Hui-Jie Yang

060507 An image encryption algorithm based on improved baker transformation and chaotic S-box
Xing-Yuan Wang, Huai-Huai Sun and Hao Gao

060508 Fractal sorting vector-based least significant bit chaotic permutation for image encryption
Yong-Jin Xian, Xing-Yuan Wang, Ying-Qian Zhang, Xiao-Yu Wang and Xiao-Hui Du

060509 Generating multi-layer nested chaotic attractor and its FPGA implementation
Xuanan Peng, Yicheng Zeng, Mengjiao Wang and Zhijun Li

060601 Signal-recycled weak measurement for ultrasensitive velocity estimation
Sen-Zhi Fang, Yang Dai, Qian-Wen Jiang, Hua-Tang Tan, Gao-Xiang Li and Qing-Lin Wu

060701 Differentiable programming and density matrix based Hartree–Fock method
Hong-Bin Ren, Lei Wang and Xi Dai

060702 Magnetic shielding property for cylinder with circular, square, and equilateral triangle holes
Si-Yuan Hao, Xiao-Ping Lou, Jing Zhu, Guang-Wei Chen and Hui-Yu Li

ATOMIC AND MOLECULAR PHYSICS

063101 Charge disturbance/excitation in the Raman virtual state revealed by ROA signal: A case study of pinane
Ziqi Zhu, Peijie Wang and Guozhen Wu

063401 Production of dual species Bose–Einstein condensates of $^{39}$K and $^{87}$Rb
Cheng-Dong Mi, Khan Sadiq Nawaz, Peng-Jun Wang, Liang-Chao Chen, Zeng-Ming Meng, Lianghui Huang and Jing Zhang

ELECTROMAGNETISM, OPTICS, ACOUSTICS, HEAT TRANSFER, CLASSICAL MECHANICS, AND FLUID DYNAMICS

064101 Characteristic mode analysis of wideband high-gain and low-profile metasurface antenna
Kun Gao, Xiang-Yu Cao, Jun Gao, Huan-Huan Yang and Jiang-Feng Han
064201 Real time high accuracy phase contrast imaging with parallel acquisition speckle tracking
Zhe Hu, Wen-Qiang Hua and Jie Wang

064202 High speed ghost imaging based on a heuristic algorithm and deep learning
Yi-Yi Huang, Chen Ou-Yang, Ke Fang, Yu-Feng Dong, Jie Zhang, Li-Ming Chen and Ling-An Wu

064203 Perfect photon absorption based on the optical parametric process
Yang Zhang, Yu-Bo Ma, Xin-Ping Li, Yu Guo and Chang-Shui Yu

064204 Effective Hamiltonian of the Jaynes–Cummings model beyond rotating-wave approximation
Yi-Fan Wang, Hong-Hao Yin, Ming-Yue Yang, An-Chun Ji and Qing Sun

064205 Graphene-tuned threshold gain to achieve optical pulling force on microparticle
Hong-Li Chen and Yang Huang

064206 Multiple scattering and modeling of laser in fog
Ji-Yu Xue, Yun-Hua Cao, Zhen-Sen Wu, Jie Chen, Yan-Hui Li, Geng Zhang, Kai Yang and Ruo-Ting Gao

064207 Aperture-averaged scintillation index and fade statistics in weak oceanic turbulence
Hao Wang, Fu-Zeng Kang, Xuan Wang, Wei Zhao and Shu-Wei Sun

064208 Comprehensive studies on dielectric properties of p-methoxy benzylidene p-decyl aniline with function of temperature and frequency in planar geometry: A potential nematic liquid crystal for display devices
Pankaj Kumar Tripathi, Kunwar Vikram, Mithlesh Tiwari and Ajay Shriram

064209 Dynamic modulation in graphene-integrated silicon photonic crystal nanocavity
Long-Pan Wang, Cheng Ren, De-Zhong Cao, Rui-Jun Lan and Feng Kang

064210 A 90° mixed-mode twisted nematic liquid-crystal-on-silicon with an insulating protrusion structure
Wen-Juan Li, Yu-Qiang Guo, Chi Zhang, Hong-Mei Ma and Yu-Bao Sun

064211 Degenerate cascade fluorescence: Optical spectral-line narrowing via a single microwave cavity
Liang Hu, Xiang-Ming Hu and Qing-Ping Hu

064212 Generation of multi-wavelength square pulses in the dissipative soliton resonance regime by a Yb-doped fiber laser
Xude Wang, Simin Yang, Mengqiu Sun, Xu Geng, Jieryu Pan, Shuguang Miao and Suwen Li

064213 An approach to gas sensors based on tunable diode laser incomplete saturated absorption spectra
Wei Nie, Zhen-Yu Xu, Rui-Feng Kan, Mei-Rong Dong and Ji-Dong Lu

064214 Efficient realization of daytime radiative cooling with hollow zigzag SiO$_2$ metamaterials
Huawei Yao, Xiaoxia Wang, Huaiyuan Yin, Yuanlin Jia, Yong Gao, Junqiao Wang and Chunzhen Fan

064215 Surface plasmon polaritons induced reduced hacking
Bakhtawar, Muhammad Haneef and Humayun Khan
Parameter accuracy analysis of weak-value amplification process in presence of noise
Jiangdong Qiu, Zhaoxue Li, Linguo Xie, Lan Luo, Yu He, Changliang Ren, Zhiyou Zhang and Jinglei Du

PHYSICS OF GASES, PLASMAS, AND ELECTRIC DISCHARGES

Numerical simulation and experimental validation of multiphysics field coupling mechanisms for a high power ICP wind tunnel
Ming-Hao Yu, Zhe Wang, Ze-Yang Qiu, Bo Lv and Bo-Rui Zheng

Time-resolved radial uniformity of pulse-modulated inductively coupled \( O_2/Ar \) plasmas
Wei Liu, Chan Xue, Fei Gao, Yong-Xin Liu, You-Nian Wang and Yong-Tao Zhao

CONDENSED MATTER: STRUCTURAL, MECHANICAL, AND THERMAL PROPERTIES

Effects of short-range attraction on Jamming transition
Zhenhuan Xu, Rui Wang, Jiamei Cui, Yanjun Liu and Wen Zheng

Novel rubidium polyfluorides with \( F_3, F_4, \) and \( F_5 \) species
Ziyue Lin, Hongyu Yu, Hao Song, Zihan Zhang, Tianxiao Liang, Mingyang Du and Defang Duan

Reconstruction and interpretation of photon Doppler velocimetry spectrum for ejecta particles from shock-loaded sample in vacuum
Xiao-Feng Shi, Dong-Jun Ma, Song-lin Dang, Zong-Qiang Ma, Hai-Quan Sun, An-Min He and Pei Wang

Hydrogen-induced dynamic slowdown of metallic glass-forming liquids
Jin-Ai Gao, Hai-Shen Huang and Yong-Jun Lü

Crystallization evolution and relaxation behavior of high entropy bulk metallic glasses using microalloying process
Danhong Li, Changyong Jiang, Hui Li and Mahander Pandey

Effects of \( W^{6+} \) occupying \( Sc^{3+} \) on the structure, vibration, and thermal expansion properties of scandium tungstate
Dongxia Chen, Qiang Sun, Zhanjun Yu, Mingyu Li, Juan Guo, Mingju Chao and Erjun Liang

Floquet bands and photon-induced topological edge states of graphene nanoribbons
Weijie Wang, Xiaolong Lü and Hang Xie

Bose–Einstein condensates under a non-Hermitian spin–orbit coupling
Hao-Wei Li and Jia-Zheng Sun

Superfluid phases and excitations in a cold gas of d-wave interacting bosonic atoms and molecules
Zehan Li, Jian-Song Pan and W Vincent Liu

In-plane oriented \( CH_3NH_3PbI_3 \) nanowire suppression of the interface electron transfer to PCBM
Tao Wang, Zhao-Hui Yu, Hao Huang, Wei-Guang Kong, Wei Dang and Xiao-Hui Zhao
067101 Anisotropic thermoelectric transport properties in polycrystalline SnSe$_2$
Caiyun Li, Wenke He, Dongyang Wang and Li-Dong Zhao

067102 Tuning transport coefficients of monolayer MoSi$_2$N$_4$ with biaxial strain
Xiao-Shu Guo and San-Dong Guo

067103 Magnetic impurity in hybrid and type-II nodal line semimetals
Xiao-Rong Yang, Zhen-Zhen Huang, Wan-Sheng Wang and Jin-Hua Sun

067104 Cobalt anchored CN sheet boosts the performance of electrochemical CO oxidation
Xu Liu, Jun-Chao Huang and Xiang-Mei Duan

067301 High sensitive chiral molecule detector based on the amplified lateral shift in
Kretschmann configuration involving chiral TDBCs
Song Wang, Qihui Ye, Xudong Chen, Yanzhu Hu and Gang Song

067302 Device topological thermal management of $\beta$-Ga$_2$O$_3$ Schottky barrier diodes
Yang-Tong Yu, Xue-Qiang Xiang, Xuan-Ze Zhou, Kai Zhou, Guang-Wei Xu, Xiao-Long Zhao and Shi-Bing Long

067303 Terminal-optimized 700-V LDMOS with improved breakdown voltage and ESD robustness
Jie Xu, Nai-Long He, Hai-Lian Liang, Sen Zhang, Yu-De Jiang and Xiao-Feng Gu

067304 Floquet topological phase transition in two-dimensional quadratic band crossing system
Guo-Bao Zhu and Hui-Min Yang

067305 Design and simulation of AlN-based vertical Schottky barrier diodes
Chun-Xu Su, Wei Wen, Wu-Xiong Fei, Wei Mao, Jia-Jie Chen, Wei-Hang Zhang, Sheng-Lei Zhao, Jin-Cheng Zhang and Yue Hao

067306 Electrochemical liftoff of freestanding GaN by a thick highly conductive sacrificial layer
grown by HVPE
Xiao Wang, Yu-Min Zhang, Yu Xu, Zhi-Wei Si, Ke Xu, Jian-Feng Wang and Bing Cao

067307 Effects of post-annealing on crystalline and transport properties of Bi$_2$Te$_3$ thin films
Qi-Xun Guo, Zhong-Xu Ren, Yi-Ya Huang, Zhi-Chao Zheng, Xue-Min Wang, Wei He, Zhen-Dong Zhu and Jiao Teng

067401 Temperature and doping dependent flat-band superconductivity on the Lieb-lattice
Feng Xu, Lei Zhang and Li-Yun Jiang

067402 Pressure-induced anomalous insulating behavior in frustrated iridate La$_3$Ir$_3$O$_{11}$
Chun-Hua Chen, Yong-Hui Zhou, Ying Zhou, Yi-Fang Yuan, Chao An, Xu-Liang Chen, Zhao-Ming Tian and Zhao-Rong Yang

067501 Bias-controlled spin memory and spin injector scheme in the tunneling junction with a
single-molecule magnet
Zheng-Zhong Zhang and Hao Liu
Effects of post-sinter annealing on microstructure and magnetic properties of Nd–Fe–B sintered magnets with Nd–Ga intergranular addition
Jin-Hao Zhu, Lei Jin, Zhe-Huan Jin, Guang-Fei Ding, Bo Zheng, Shuai Guo, Ren-Jie Chen and A-Ru Yan

Magnetostriction and spin reorientation in ferromagnetic Laves phase Pr(Ga$_x$Fe$_{1-x}$)$_{1.9}$ compounds
Min-Yu Zeng, Qing Tang, Zhi-Wei Mei, Cai-Yan Lu, Yan-Mei Tang, Xiang Li, Yun He and Ze-Ping Guo

Emergent O(4) symmetry at the phase transition from plaquette-singlet to antiferromagnetic order in quasi-two-dimensional quantum magnets
Guangyu Sun, Nvsen Ma, Bowen Zhao, Anders W. Sandvik and Zi Yang Meng

Band alignment between NiO$_x$ and nonpolar/semipolar GaN planes for selective-area-doped termination structure
Ji-Yao Du, Ji-Yu Zhou, Xiao-Bo Li, Tao-Fei Pu, Liu-An Li, Xin-Zhi Liu and Jin-Ping Ao

Laser-induced thermal lens study of the role of morphology and hydroxyl group in the evolution of thermal diffusivity of copper oxide
Riya Sebastian, M S Swapna, Vimal Raj and S Sankararaman

Low-dimensional phases engineering for improving the emission efficiency and stability of quasi-2D perovskite films
Yue Wang, Zhuang-Zhuang Ma, Ying Li, Fei Zhang, Xu Chen and Zhi-Feng Shi

Effects of substitution of group-V atoms for carbon or silicon atoms on optical properties of silicon carbide nanotubes
Ying-Ying Yang, Pei Gong, Wan-Duo Ma, Rui Hao and Xiao-Yong Fang

Enhanced microwave absorption performance of MOF-derived hollow Zn-Co/C anchored on reduced graphene oxide
Yue Wang, Dawei He and Yongsheng Wang

INTERDISCIPLINARY PHYSICS AND RELATED AREAS OF SCIENCE AND TECHNOLOGY

Effect of metal nanoparticle doping concentration on surface morphology and field emission properties of nano-diamond films
Yao Wang, Sheng-Wang Yu, Yan-Peng Xue, Hong-Jun Hei, Yan-Xia Wu and Yan-Yan Shen

Synthesis and characterizations of boron and nitrogen co-doped high pressure and high temperature large single-crystal diamonds with increased mobility
Xin-Yuan Miao, Hong-An Ma, Zhuang-Fei Zhang, Liang-Chao Chen, Li-Juan Zhou, Min-Si Li and Xiao-Peng Jia

Understanding the synergistic effect of mixed solvent annealing on perovskite film formation
Kun Qian, Yu Li, Jingnan Song, Jazib Ali, Ming Zhang, Lei Zhu, Hong Ding, Junzhe Zhan and Wei Feng
Morphologies of a spherical bimodal polyelectrolyte brush induced by polydispersity and solvent selectivity
Qing-Hai Hao and Jie Cheng

Silicon micropillar electrodes of lithiumion batteries used for characterizing electrolyte additives
Fangrong Hu, Mingyang Zhang, Wenbin Qi, Jiayun Zheng, Yue Sun, Jianyu Kang, Hai Long Yu, Qiyu Wang, Shijuan Chen, Xinhua Sun, Baogang Quan, Junjie Li, Changzhi Gu and Hong Li

Suppression of ice nucleation in supercooled water under temperature gradients
Li-Ping Wang, Wei-Liang Kong, Pei-Xiang Bian, Fu-Xin Wang and Hong Liu

Suppression of ferroresonance using passive memristor emulator
S Poornima

An SBT-memristor-based crossbar memory circuit
Mei Guo, Ren-Yuan Liu, Ming-Long Dou and Gang Dou

Effect of electrical contact on performance of WSe2 field effect transistors
Yi-Di Pang, En-Xiu Wu, Zhi-Hao Xu, Xiao-Dong Hu, Sen Wu, Lin-Yan Xu and Jing Liu

Reversible waveform conversion between microwave and optical fields in a hybrid optoelectromechanical system
Li-Guo Qin, Zhong-Yang Wang, Jie-Hui Huang, Li-Jun Tian and Shang-Qing Gong

Gas sensor using gold doped copper oxide nanostructured thin films as modified cladding fiber
Hussein T. Salloom, Rushdi I. Jasim, Nadir Fadhil Habubi, Sami Salman Chiad, M Jadan and Jihad S. Addasi

Coarse-grained simulations on interactions between spectrins and phase-separated lipid bilayers
Xuegui Lin, Xiaojie Chen and Qing Liang

Computational model investigating the effect of magnetic field on neural–astrocyte microcircuit
Li-Cong Li, Jin Zhou, Hong-Ji Sun, Peng Xiong, Hong-Rui Wang, Xiu-Ling Liu and Chang-Yong Wang

Constraints on the kinetic energy of type-Ic supernova explosion from young PSR J1906 + 0746 in a double neutron star candidate
Yi-Yan Yang, Cheng-Min Zhang, Jian-Wei Zhang and De-Hua Wang