

物 理 学 报

第 71 卷 第 24 期 2022 年 12 月 20 日

目 次

专题: 量子计算新进展: 硬件、算法和软件

综述

- 240302 集成光量子计算的研究进展 周文豪 王耀 翁文康 金贤敏
240303 非厄米系统的量子模拟新进展 高雪儿 李代莉 刘志航 郑超
240305 基于超导量子系统的量子纠错研究进展
..... 陈子杰 潘啸轩 华子越 王韦婷 马雨玮 李明 邹旭波 孙麓岩 邹长铃
244207 基于集成光芯片的量子模拟研究进展 陈阳 张天炆 郭光灿 任希锋

专题: 非厄米物理前沿

综述

- 247802 非厄密电磁超表面研究进展 范辉颖 罗杰

综述

- 240701 功能化原子力显微镜在纳米电介质材料性能研究中的应用进展
..... 孟菁怡 卢红伟 马世乐 张嘉奇 何富民 苏伟涛 赵晓东 田婷 王翼 邢誉

总论

- 240301 有序-无序二维耦合系统的电子输运性质 陆艳艳 王超 刘洁 蒋金益 钟建新
240304 基于实际探测器补偿的离散调制连续变量测量设备无关量子密钥分发方案
..... 吴晓东 黄端 黄鹏 郭迎
240501 空间调制的驱动外场下活性聚合物的动力学行为 高艺雯 王影 田文得 陈康
240502 一个具有超级多稳定性的忆阻混沌系统的分析与 FPGA 实现 张贵重 全旭 刘嵩
240601 基于多普勒非对称空间外差光谱测速的复合光程差相移解算方法 ... 彭翔 刘恩海 田书林 方亮
240702 微波谐振腔低气压放电等离子体反应动力学过程 陈泽煜 彭玉彬 王瑞 贺永宁 崔万照

原子和分子物理学

- 243101 尺寸依赖的 CoCrFeNiMn 晶体/非晶双相高熵合金塑性变形机制的分子动力学模拟
..... 安敏荣 李思澜 宿梦嘉 邓琼 宋海洋
243401 BCl_3 同位素分离中二聚体的浓度 李业军 郭静 马俊平 唐显 李鑫 闫冰

电磁学、光学、声学、传热学、经典力学和流体动力学

- 244201 基于四盘形谐振腔耦合波导的三波段等离子体诱导透明效应
..... 朱子豪 高有康 曾严 程政 马洪华 易煦农
244202 激光二极管直接后向泵浦的高光束质量千瓦光纤激光器 文榆钧 王鹏
奚小明 张汉伟 黄良金 杨欢 闫志平 杨保来 史尘 潘志勇 王小林 王泽锋 许晓军
244203 结构光照明相位/荧光双模式显微技术 高兆琳 刘瑞桦 温凯 马英 李建郎 郜鹏
244204 含多个相干耦合人工原子的单模腔的输入输出特性 ... 郑贇杰 王晨阳 谢双媛 许静平 羊亚平
244205 光学滤波腔输出场音频段噪声特性的实验研究
..... 张超群 李瑞鑫 张文慧 焦南婧 田龙 王雅君 郑耀辉
244206 在开磁路中利用抽运-检测型铷原子磁力仪测量软磁材料的矫顽力
..... 缪培贤 王涛 史彦超 高存绪 蔡志伟 柴国志 陈大勇 王建波
244301 基于卷积神经网络的白蚀缺陷超声探测 朱琦 许多 张元军 李玉娟 王文 张海燕

- 244302 双表面周期性弹性声子晶体板中的谷拓扑态 李荫铭 孔鹏 毕仁贵 何兆剑 邓科
 244303 超声场中气泡稳态空化对枝晶生长过程的作用机制 张颖 吴文华 王建元 翟薇
 244304 火星大气频散声速剖面建模方法及其对声传播路径的影响 孙冠文 崔寒茵 李超 林伟军
 244601 强冲击加载下延性金属卸载熔化损伤/破碎问题的物理建模及其应用
 张凤国 刘军 何安民 赵福祺 王裴

气体、等离子体和放电物理

- 245201 结合机器学习的大气压介质阻挡放电数值模拟研究 艾飞 刘志兵 张远涛
 245202 射频/直流驱动大气压氩气介质阻挡放电的一维仿真研究 ... 齐兵 田晓 王静 王屹山 司金海 汤洁
 245203 在质子照相中利用 Abel 逆变换反演等离子体自生磁场结构
 邓雯 杜报 蔡洪波 康润国 朱少平

凝聚物质: 结构、力学和热学性质

- 246101 温度对 CoCrFeMnNi 高熵合金冲击响应和塑性变形机制影响的分子动力学研究 闻鹏 陶钢
 246102 Er³⁺ 掺杂 TiO₂ 的局域结构及电子性质的第一性原理研究
 陈光平 杨金妮 乔昌兵 黄陆君 虞静

凝聚物质: 电子结构、电学、磁学和光学性质

- 247301 三椭圆谐振腔耦合波导中可调谐双重等离子体诱导透明效应的理论分析
 谷馨 张惠芳 李明雨 陈俊雅 何英
 247302 静水压力调谐 Ag 纳米颗粒散射场下量子点激子寿命
 黄君辉 李元和 王健 李叔伦 倪海桥 牛智川 窦秀明 孙宝权
 247501 Fe 基合金应力感生不可逆磁各向异性机理 张建强
 秦彦军 方峥 范晓珍 杨慧雅 邝富丽 翟耀 苗艳龙 赵梓翔 何佳俊 叶慧群 方允樟
 247502 磁电机机械天线的阻抗特性分析 宋凯欣 闵书刚 高俊奇 张双捷 毛智能 沈莹 储昭强
 247801 等腰直角三角形光阱中的电子束手性衍射辐射 刘志鑫 党邗博 方哲宇
 247803 氮化硅微波高温介电函数深度学习分子动力学模拟 ... 李志强 谭晓瑜 段忻磊 张敬义 杨家跃
 247901 飞秒激光加工熔融石英的理论和实验研究 潘鹏晖 吉鹏飞 林根 董希明 赵晋晖

物理学交叉学科及有关科学技术领域

- 248201 异质环境下各向异性扩散对图灵斑图的影响 刘若琪 贾萌萌 范伟丽 贺亚峰 刘富成
 248401 Bi/Sb 原子置换位置对 Mg₂Si_{0.375}Sn_{0.625} 合金电子传输性能的影响
 李鑫 谢辉 张亚龙 马莹 张军涛 苏恒杰
 248402 一款 360°连续扫描圆形阵列天线设计 王身云 张康旭 王峰 文舸一
 248501 超大面积超导纳米线阵列单光子探测器设计与制备 张笑
 吕嘉煜 管焰秋 李慧 王锡明 张蜡宝 王昊 涂学凑 康琳 贾小氢 赵清源 陈健 吴培亨
 248502 5—10 μm 波段超导单光子探测器设计与研制 陈奇 戴越
 李飞燕 张彪 李昊辰 谭静柔 汪潇涵 何广龙 费越 王昊 张蜡宝 康琳 陈健 吴培亨

地球物理学、天文学和天体物理学

- 249601 膝区宇宙线广延大气簇射次级成分的特征 张丰 刘虎 祝凤荣
 (卷终)

文章图片的彩色效果详见网刊



扫码阅读
电子版

ACTA PHYSICA SINICA

Vol. 71, No. 24, December 20, 2022

CONTENTS

SPECIAL TOPIC—Recent advances in hardware, algorithms and software of quantum computers

REVIEW

- 240302 Research progress of integrated optical quantum computing
Zhou Wen-Hao Wang Yao Weng Wen-Kang Jin Xian-Min
- 240303 Recent progress of quantum simulation of non-Hermitian systems
Gao Xue-Er Li Dai-Li Liu Zhi-Hang Zheng Chao
- 240305 Advances in quantum error correction based on superconducting quantum systems
*Chen Zi-Jie Pan Xiao-Xuan Hua Zi-Yue Wang Wei-Ting Ma Yu-Wei Li Ming
Zou Xu-Bo Sun Lu-Yan Zou Chang-Ling*
- 244207 Research progress of integrated photonic quantum simulation
Chen Yang Zhang Tian-Yang Guo Guang-Can Ren Xi-Feng

SPECIAL TOPIC—Frontiers in non-Hermitian physics

REVIEW

- 247802 Research progress of non-Hermitian electromagnetic metasurfaces
Fan Hui-Ying Luo Jie

REVIEW

- 240701 Progress of application of functional atomic force microscopy in study of nanodielectric material properties
*Meng Jing-Yi Lu Hong-Wei Ma Shi-Le Zhang Jia-Qi He Fu-Min Su Wei-Tao
Zhao Xiao-Dong Tian Ting Wang Yi Xing Yu*

GENERAL

- 240301 Electron transport properties of order-disorder separated two-dimensional bilayer systems
Lu Yan-Yan Wang Chao Liu Jie Jiang Jin-Yi Zhong Jian-Xin
- 240304 Discrete modulation continuous-variable measurement-device-independent quantum key distribution scheme based on realistic detector compensation
Wu Xiao-Dong Huang Duan Huang Peng Guo Ying
- 240501 Dynamic behavior of active polymer chain in spatially-modulated driven field
Gao Yi-Wen Wang Ying Tian Wen-De Chen Kang
- 240502 Analysis and FPGA implementation of memristor chaotic system with extreme multistability
Zhang Gui-Zhong Quan Xu Liu Song
- 240601 A compound optical path difference phase-shift solution method based on Doppler asymmetric spatial heterodyne spectral velocimetry
Peng Xiang Liu En-Hai Tian Shu-Lin Fang Liang
- 240702 Reaction dynamic process of low pressure discharge plasma in microwave resonant cavity
Chen Ze-Yu Peng Yu-Bin Wang Rui He Yong-Ning Cui Wan-Zhao

ATOMIC AND MOLECULAR PHYSICS

- 243101 Molecular dynamics simulation of size dependent plastic deformation mechanism of CoCrFeNiMn crystalline/amorphous dual-phase high-entropy alloys
An Min-Rong Li Si-Lan Su Meng-Jia Deng Qiong Song Hai-Yang
- 243401 Concentration of dimers for BCl_3 and rare gas atoms in BCl_3 isotope separation
Li Ye-Jun Guo Jing Ma Jun-Ping Tang Xian Li Xin Yan Bing

(Continued)

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

- 244201 Three-band plasmon induced transparency effect based on four-disk resonator coupled waveguide system
Zhu Zi-Hao Gao You-Kang Zeng Yan Cheng Zheng Ma Hong-Hua Yi Xu-Nong
- 244202 Laser diode directly backward pumped high-beam-quality 10-kW fiber laser
Wen Yu-Jun Wang Peng Xi Xiao-Ming Zhang Han-Wei Huang Liang-Jin Yang Huan Yan Zhi-Ping Yang Bao-Lai Shi Chen Pan Zhi-Yong Wang Xiao-Lin Wang Ze-Feng Xu Xiao-Jun
- 244203 Phase/fluorescence dual-mode microscopy imaging based on structured light illumination
Gao Zhao-Lin Liu Rui-Hua Wen Kai Ma Ying Li Jian-Lang Gao Peng
- 244204 Input-output characteristics of single-mode cavity with multiple coherently coupled artificial atoms
Zheng Yun-Jie Wang Chen-Yang Xie Shuang-Yuan Xu Jing-Ping Yang Ya-Ping
- 244205 Experimental study on noise characteristics of audio frequency band in output field of optical filter cavity
Zhang Chao-Qun Li Rui-Xin Zhang Wen-Hui Jiao Nan-Jing Tian Long Wang Ya-Jun Zheng Yao-Hui
- 244206 Measurement of coercivity of soft magnetic materials in open magnetic circuit by pump-probe rubidium atomic magnetometer
Miao Pei-Xian Wang Tao Shi Yan-Chao Gao Cun-Xu Cai Zhi-Wei Chai Guo-Zhi Chen Da-Yong Wang Jian-Bo
- 244301 Ultrasonic detection of white etching defect based on convolution neural network
Zhu Qi Xu Duo Zhang Yuan-Jun Li Yu-Juan Wang Wen Zhang Hai-Yan
- 244302 Valley topological states in double-surface periodic elastic phonon crystal plates
Li Yin-Ming Kong Peng Bi Ren-Gui He Zhao-Jian Deng Ke
- 244303 Mechanism of effect of stable cavitation on dendrite growth in ultrasonic field
Zhang Ying Wu Wen-Hua Wang Jian-Yuan Zhai Wei
- 244304 Methods of modelling dispersive sound speed profiles of Martian atmosphere and their effects on sound propagation paths
Sun Guan-Wen Cui Han-Yin Li Chao Lin Wei-Jun
- 244601 Modelling of spall damage evolution and fragment distribution for melted metals under shock release
Zhang Feng-Guo Liu Jun He An-Min Zhao Fu-Qi Wang Pei

PHYSICS OF GASES, PLASMAS, AND ELECTRIC DISCHARGES

- 245201 Numerical study of discharge characteristics of atmospheric dielectric barrier discharges by integrating machine learning
Ai Fei Liu Zhi-Bing Zhang Yuan-Tao
- 245202 One-dimensional simulation of Ar dielectric barrier discharge driven by combined rf/dc sources at atmospheric pressure
Qi Bing Tian Xiao Wang Jing Wang Yi-Shan Si Jin-Hai Tang Jie
- 245203 Self-generated magnetic field in plasma reconstructed by using inverse Abel transformation in proton radiography
Deng Luan Du Bao Cai Hong-Bo Kang Dong-Guo Zhu Shao-Ping

CONDENSED MATTER: STRUCTURAL, MECHANICAL, AND THERMAL PROPERTIES

- 246101 Molecular dynamics study of temperature effects on shock response and plastic deformation mechanism of CoCrFeMnNi high-entropy alloys
Wen Peng Tao Gang
- 246102 First-principles calculations of local structure and electronic properties of Er³⁺-doped TiO₂
Chen Guang-Ping Yang Jin-Ni Qiao Chang-Bing Huang Lu-Jun Yu Jing

(Continued)

CONDENSED MATTER: ELECTRONIC STRUCTURE, ELECTRICAL, MAGNETIC, AND OPTICAL PROPERTIES

- 247301 Theoretical analysis of tunable double plasmon induced transparency in three-ellipse-shaped resonator coupled waveguide
Gu Xin Zhang Hui-Fang Li Ming-Yu Chen Jun-Ya He Ying
- 247302 Exciton lifetime of quantum dots under hydrostatic pressure tuned scattering field Ag nanoparticles
Huang Jun-Hui Li Yuan-He Wang Jian Li Shu-Lun Ni Hai-Qiao Niu Zhi-Chuan Dou Xiu-Ming Sun Bao-Quan
- 247501 Mechanism of stress induced irreversible magnetic anisotropy in Fe-based alloy ribbons
Zhang Jian-Qiang Qin Yan-Jun Fang Zheng Fan Xiao-Zhen Yang Hui-Ya Kuang Fu-Li Zhai Yao Miao Yan-Long Zhao Zi-Xiang He Jia-Jun Ye Hui-Qun Fang Yun-Zhang
- 247502 Impedance characteristics of magnetoelectric antennas
Song Kai-Xin Min Shu-Gang Gao Jun-Qi Zhang Shuang-Jie Mao Zhi-Neng Shen Ying Chu Zhao-Qiang
- 247801 Electron beam chiral diffraction radiation in isosceles right triangle light-well
Liu Zhi-Xin Dang Zhi-Bo Fang Zhe-Yu
- 247803 Deep learning molecular dynamics simulation on microwave high-temperature dielectric function of silicon nitride
Li Zhi-Qiang Tan Xiao-Yu Duan Xin-Lei Zhang Jing-Yi Yang Jia-Yue
- 247901 Theoretical and experimental research of femtosecond laser processing fused silica
Pan Peng-Hui Ji Peng-Fei Lin Gen Dong Xi-Ming Zhao Jin-Hui

INTERDISCIPLINARY PHYSICS AND RELATED AREAS OF SCIENCE AND TECHNOLOGY

- 248201 Effects of anisotropic diffusion on Turing patterns in heterogeneous environment
Liu Ruo-Qi Jia Meng-Meng Fan Wei-Li He Ya-Feng Liu Fu-Cheng
- 248401 Effect of Sb/Bi atom substitution site on electronic transport properties of $\text{Mg}_2\text{Si}_{0.375}\text{Sn}_{0.625}$ alloy
Li Xin Xie Hui Zhang Ya-Long Ma Ying Zhang Jun-Tao Su Heng-Jie
- 248402 Design of a 360° continuously scanning circular array antenna
Wang Shen-Yun Zhang Kang-Xu Wang Feng Wen Ge-Yi
- 248501 Design and fabrication of single photon detector with ultra-large area superconducting nanowire array
Zhang Xiao Lü Jia-Yu Guan Yan-Qiu Li Hui Wang Xi-Ming Zhang La-Bao Wang Hao Tu Xue-Cou Kang Lin Jia Xiao-Qing Zhao Qing-Yuan Chen Jian Wu Pei-Heng
- 248502 Design and fabrication of superconducting single-photon detector operating in 5–10 μm wavelength band
Chen Qi Dai Yue Li Fei-Yan Zhang Biao Li Hao-Chen Tan Jing-Rou Wang Xiao-Han He Guang-Long Fei Yue Wang Hao Zhang La-Bao Kang Lin Chen Jian Wu Pei-Heng

GEOPHYSICS, ASTRONOMY, AND ASTROPHYSICS

- 249601 Properties of secondary components in extensive air shower of cosmic rays in knee energy region
Zhang Feng Liu Hu Zhu Feng-Rong

(END OF THE VOLUME)

Color figures can be viewed in the online issue.



Online issue