

物理学报

Acta Physica Sinica

15

2022 Vol.71

ISSN 1000-3290



中国物理学会 | 中国科学院物理研究所

Chinese Physical Society | Institute of Physics, Chinese Academy of Sciences

物 理 学 报

第 71 卷 第 15 期 2022 年 8 月 5 日

目 次

特邀综述

- 152901 稳态微聚束加速器光源 唐传祥 邓秀杰

总论

- 150301 电路量子电动力学中基于超绝热捷径的控制相位门实现 王雪梅 张安琪 赵生妹
150302 微波驱动下超导量子比特与磁振子的相干耦合 徐达 王逸璞 李铁夫 游建强
150303 仿雁群阵列量子空中通信组网构建策略 姚明辉 聂敏 杨光 张美玲 孙爱晶 裴昌幸
150304 基于单光子的高效量子安全直接通信方案 赵宁 江英华 周贤韬
150501 “十”字形自驱单元形成寡聚体的动力学行为 何景熙 秦超然 许天亮 陈康 田文得
150502 自混沌光相位调制光反馈半导体激光器输出光的混沌特性 庞爽 冯玉玲 于萍 姚治海
150701 涡旋光束在双拉盖尔-高斯旋转腔中的非互易传输 朱雪松 刘星雨 张岩

核物理学

- 152101 基于同位素链核电荷半径的新关系 焦宝宝

原子和分子物理学

- 153101 新型二维拉胀材料 SiGeS 的理论预测及其光电性质 祝裕捷 蒋涛 叶小娟 刘春生

电磁学、光学、声学、传热学、经典力学和流体动力学

- 154101 基于面磁荷密度的金属磁记忆检测正演模型 罗旭 王丽红 吕良 曹书峰 董学成 赵建国
154201 基于裂纹模板法的金属网格透明导电薄膜制备及性能改进 廖敦微 郑月军 陈强 丁亮 高冕 付云起
154202 相干彩虹的形成机制(续) 施婷婷 钱轩 尚雅轩 姬扬
154203 激光主动照明均匀性影响因素及其规律 罗文 张飞舟 张建柱
154204 石英基 L 波段扩展掺铒光纤及其放大性能 何乐 褚应波 戴能利 李进延
154205 线性剪切空间调制快拍成像动态定标技术 曹奇志 唐金凤 潘杨柳 江敏 蒋思悦 张晶 贾辰凌 樊东鑫 邓婷 王华华 段炼
154206 非线性效应对前向受激布里渊散射分布式传感的影响 杨玉莲 刘黎明 邓庆雪 贾新鸿 梁文燕 姜利 宋伟杰 牟欣扬
154401 耦合 Frenkel-Kontorova 双链的格波解及其色散关系 苏瑞霞 黄霞 郑志刚
154701 磁场对激光驱动 Rayleigh-Taylor 不稳定性影响的数值研究 孙伟 吕冲 雷柱 仲佳勇

气体、等离子体和放电物理

- 155201 超音速高密度喷流对撞过程中的高效能量转移 张喆 远晓辉 张翌航 刘浩
方可 张成龙 刘正东 赵旭 董全力 刘高扬 戴羽 谷昊琛 李玉同 郑坚 仲佳勇 张杰
155202 用于等离子体相干模式自动识别的谱聚类算法实现 赵子博 庄革 谢锦林 渠承明 强子薇

凝聚物质: 结构、力学和热学性质

- 156101 巴黎-爱丁堡压机中子衍射高压下温度加载实验 杨功章 谢雷 陈喜平 何瑞琦 韩铁鑫 牛国梁 房雷鸣 贺端威

- 156102 退火时间对 $\text{Fe}_{80}\text{Si}_9\text{B}_{10}\text{Cu}_1$ 非晶合金纳米尺度结构不均匀性和磁性能的影响 陈波 杨詹詹 王玉楹 王寅岗
- 156103 T91 钢和 SIMP 钢表面 AlO_x 涂层在 600 °C 静态液态铅铋共晶中的稳定性和腐蚀行为 ... 廖庆 李炳生 葛芳芳 张宏鹏 申铁龙 毛雪丽 王任大 盛彦斌 常海龙 王志光 徐帅 陈黎明 何晓珣
- 156801 极性补偿对 $\text{LaMnO}_3/\text{LaNiO}_3$ 超晶格交换偏置场强度的影响 魏浩铭 张颖 张宙 吴仰晴 曹丙强

凝聚物质: 电子结构、电学、磁学和光学性质

- 157301 石墨烯/ $\text{Bi}_{0.5}\text{Sb}_{1.5}\text{Te}_3$ 柔性热电薄膜及其面内散热器件的设计制备与性能评价 聂晓蕾 余灏成 朱婉婷 桑夏晗 魏平 赵文俞
- 157501 衬底层对 $\text{Fe}_{65}\text{Co}_{35}$ 合金薄膜结构与磁性的影响 韩泽宇 宋乘吉 周杰 郑富
- 157502 $\text{FeNiMo}/\text{SiO}_2$ 复合粉芯的制备与软磁性能调控 熊政伟 杨江 王雨 杨陆 管弦 曹林洪 王进 高志鹏
- 157801 ZIFs 纳米晶体中电子偶素的自旋转换 ... 李重阳 李梦德 汪美 李涛 刘建党 叶邦角 陈志权
- 157901 变掺杂变组分 $\text{Al}_x\text{Ga}_{1-x}\text{As}/\text{GaAs}$ 反射式光电阴极分辨力特性 邓文娟 朱斌 王壮飞 彭新村 邹继军

物理学交叉学科及有关科学技术领域

- 158101 多步旋涂过程中 CsPbBr_3 无机钙钛矿成膜机理 ... 马书鹏 林飞宇 罗媛 朱刘 郭学益 杨英
- 158501 自差分交流偏置超导纳米线单光子探测器 马璐瑶 张兴雨 舒志运 肖游 张天柱 李浩 尤立星
- 158502 超导转变边沿探测器梁架尺寸估算方法 高冠华 徐郁 廖国福 卢方军
- 158503 低反向漏电自支撑衬底 $\text{AlGaIn}/\text{GaIn}$ 肖特基二极管 武鹏 张涛 张进成 郝跃
- 158701 稠密流体氮高温高压相变及物态方程 田春玲 刘海燕 王彪 刘福生 甘云丹
- 158702 光子计数成像系统的自适应累积时间扫描方法 ... 朱文华 汪书潮 王凯迪 陈松懋 马彩文 苏秀琴
- 158801 掺杂石墨烯纳米片对硝酸钠相变特性的影响及机理 吕浩翔 冯黛丽 冯妍卉 张欣欣
- 158802 质子交换膜燃料电池多时间尺度下的动态特性 王季康 李华 彭宇飞 李晓燕 张新宇

地球物理学、天文学和天体物理学

- 159101 基于车载原子重力仪的外场绝对重力快速测绘研究 王凯楠 徐晗 周寅 许云鹏 宋微 汤鸿志 王巧薇 朱栋 翁堪兴 王河林 彭树萍 王肖隆 程冰 李德钊 乔中坤 吴彬 林强
- 159501 太阳极紫外 He II 30.4 nm 谱线层析成像及其光谱数据反演 邢阳光 彭吉龙 段紫雯 闫雷 李林 刘越

更正

- 159901 更正: 光学反馈线性腔衰荡光谱技术不确定性 [物理学报 2022, 71(12): 124201] 王兴平 赵刚 焦康 陈兵 阙瑞峰 刘建国 马维光

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. 15, August 5, 2022

CONTENTS

INVITED REVIEW

- 152901 Steady-state micro-bunching accelerator light source
Tang Chuan-Xiang Deng Xiu-Jie

GENERAL

- 150301 Implementation of controlled phase gate based on superadiabatic shortcut in circuit quantum electrodynamics
Wang Xue-Mei Zhang An-Qi Zhao Sheng-Mei
- 150302 Coherent coupling in a driven qubit-magnon hybrid quantum system
Xu Da Wang Yi-Pu Li Tie-Fu You Jian-Qiang
- 150303 Construction strategy of quantum air communication network of imitation goose swarm array
Yao Ming-Hui Nie Min Yang Guang Zhang Mei-Ling Sun Ai-Jing Pei Chang-Xing
- 150304 Efficient quantum secure direct communication scheme based on single photons
Zhao Ning Jiang Ying-Hua Zhou Xian-Tao
- 150501 Dynamic behavior of oligomers formed by “+” shaped self-propelling agents
He Jing-Xi Qin Chao-Ran Xu Tian-Liang Chen Kang Tian Wen-De
- 150502 Chaotic characteristics of output light from semiconductor laser with self-chaotic phase modulation and optical feedback
Pang Shuang Feng Yu-Ling Yu Ping Yao Zhi-Hai
- 150701 Nonreciprocal transmission of vortex beam in double Laguerre-Gaussian rotational cavity system
Zhu Xue-Song Liu Xing-Yu Zhang Yan

NUCLEAR PHYSICS

- 152101 New relation for nuclear charge radius based on isotope chain
Jiao Bao-Bao

ATOMIC AND MOLECULAR PHYSICS

- 153101 Theoretical prediction of novel two-dimensional auxetic material SiGeS and its electronic and optical properties
Zhu Yu-Jie Jiang Tao Ye Xiao-Juan Liu Chun-Sheng

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

- 154101 Forward model of metal magnetic memory testing based on equivalent surface magnetic charge theory
Luo Xu Wang Li-Hong Lü Liang Cao Shu-Feng Dong Xue-Cheng Zhao Jian-Guo
- 154201 Preparation and performance improvement of metal grid transparent conductive film based on crack template method
Liao Dun-Wei Zheng Yue-Jun Chen Qiang Ding Liang Gao Mian Fu Yun-Qi
- 154202 Formation mechanism of coherent rainbows (II)
Shi Ting-Ting Qian Xuan Shang Ya-Xuan Ji Yang
- 154203 Influence factors and laws of laser active illumination uniformity
Luo Wen Zhang Fei-Zhou Zhang Jian-Zhu

(Continued)

- 154204 Silicate-based erbium-doped fiber extended to L-band and its amplification performance
He Le Chu Ying-Bo Dai Neng-Li Li Jin-Yan
- 154205 Dynamic calibration of linear shear spatial modulation snapshot imaging polarimeter
Cao Qi-Zhi Tang Jin-Feng Pan Yang-Liu Jiang Min Jiang Si-Yue Zhang Jing Jia Chen-Ling Fan Dong-Xin Deng Ting Wang Hua-Hua Duan Lian
- 154206 Influence of nonlinear effects on forward stimulated Brillouin scattering distributed sensing
Yang Yu-Lian Liu Li-Ming Deng Qing-Xue Jia Xin-Hong Liang Wen-Yan Jiang Li Song Wei-Jie Mou Xin-Yang
- 154401 Lattice wave solution and its dispersion relation of two coupled Frenkel-Kontorova chains
Su Rui-Xia Huang Xia Zheng Zhi-Gang
- 154701 Numerical study of effect of magnetic field on laser-driven Rayleigh-Taylor instability
Sun Wei Lü Chong Lei Zhu Zhong Jia-Yong

PHYSICS OF GASES, PLASMAS, AND ELECTRIC DISCHARGES

- 155201 Efficient energy transition from kinetic to internal energy in supersonic collision of high-density plasma jets from conical implosions
Zhang Zhe Yuan Xiao-Hui Zhang Yi-Hang Liu Hao Fang Ke Zhang Cheng-Long Liu Zheng-Dong Zhao Xu Dong Quan-Li Liu Gao-Yang Dai Yu Gu Hao-Chen Li Yu-Tong Zheng Jian Zhong Jia-Yong Zhang Jie
- 155202 Implementation of spectral clustering algorithm for automatic identification of plasma coherence patterns
Zhao Zi-Bo Zhuang Ge Xie Jin-Lin Qu Cheng-Ming Qiang Zi-Wei

CONDENSED MATTER: STRUCTURAL, MECHANICAL, AND THERMAL PROPERTIES

- 156101 Experimental study of simultaneous high-temperature and high-pressure assembly of Paris-Edinburgh press for neutron diffraction
Yang Gong-Zhang Xie Lei Chen Xi-Ping He Rui-Qi Han Tie-Xin Niu Guo-Liang Fang Lei-Ming He Duan-Wei
- 156102 Effects of annealing time on nanoscale structural heterogeneity and magnetic properties of Fe₈₀Si₉B₁₀Cu₁ amorphous alloy
Chen Bo Yang Zhan-Zhan Wang Yu-Ying Wang Yin-Gang
- 156103 Stability and corrosion behavior of AlO_x coating on T91 steel and SIMP steel in static liquid Pb-Bi eutectic at 600 °C
Liao Qing Li Bing-Sheng Ge Fang-Fang Zhang Hong-Peng Shen Tie-Long Mao Xue-Li Wang Ren-Da Sheng Yan-Bin Chang Hai-Long Wang Zhi-Guang Xu Shuai Chen Li-Ming He Xiao-Xun
- 156801 Influence of polarity compensation on exchange bias field in LaMnO₃/LaNiO₃ superlattices
Wei Hao-Ming Zhang Ying Zhang Zhou Wu Yang-Qing Cao Bing-Qiang

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

- 157301 Design, fabrication and performance evaluation of graphene/Bi_{0.5}Sb_{1.5}Te₃ flexible thermoelectric films and in-plane heat dissipation devices
Nie Xiao-Lei Yu Hao-Cheng Zhu Wan-Ting Sang Xia-Han Wei Ping Zhao Wen-Yu
- 157501 Effects of underlayer on structures and magnetic properties of Fe₆₅Co₃₅ alloy films
Han Ze-Yu Song Cheng-Ji Zhou Jie Zheng Fu
- 157502 Preparation of FeNiMo/SiO₂ composite core and regulation of soft magnetic properties
Xiong Zheng-Wei Yang Jiang Wang Yu Yang Lu Guan Xian Cao Lin-Hong Wang Jin Gao Zhi-Peng
- 157801 Spin conversion of positronium of ZIFs nanocrystalline
Li Chong-Yang Li Meng-De Wang Mei Li Tao Liu Jian-Dang Ye Bang-Jiao Chen Zhi-Quan

(Continued)

- 157901 Resolution characteristics of varying doping and varying composition $\text{Al}_x\text{Ga}_{1-x}\text{As}/\text{GaAs}$ reflective photocathodes
Deng Wen-Juan Zhu Bin Wang Zhuang-Fei Peng Xin-Cun Zou Ji-Jun

INTERDISCIPLINARY PHYSICS AND RELATED AREAS OF SCIENCE AND TECHNOLOGY

- 158101 Formation mechanism of CsPbBr_3 in multi-step spin-coating process
Ma Shu-Peng Lin Fei-Yu Luo Yuan Zhu Liu Guo Xue-Yi Yang Ying
- 158501 Superconducting nanowire single photon detector under AC-bias with self-differential readout
Ma Lu-Yao Zhang Xing-Yu Shu Zhi-Yun Xiao You Zhang Tian-Zhu Li Hao You Li-Xing
- 158502 Estimation method for beam size of superconducting transition edge detector
Gao Guan-Hua Xu Yu Liao Guo-Fu Lu Fang-Jun
- 158503 Investigation of $\text{AlGaIn}/\text{GaIn}$ Schottky barrier diodes on free-standing GaN substrate with low leakage current
Wu Peng Zhang Tao Zhang Jin-Cheng Hao Yue
- 158701 Phase transition and equation of state of dense liquid nitrogen at high temperature and high pressure
Tian Chun-Ling Liu Hai-Yan Wang Biao Liu Fu-Sheng Gan Yun-Dan
- 158702 Adaptive acquisition time scanning method for photon counting imaging system
Zhu Wen-Hua Wang Shu-Chao Wang Kai-Di Chen Song-Mao Ma Cai-Wen Su Xiu-Qin
- 158801 Effect and mechanism of doped graphene nanosheets on phase transition properties of sodium nitrate
Lü Hao-Xiang Feng Dai-Li Feng Yan-Hui Zhang Xin-Xin
- 158802 Dynamic characteristics of proton exchange membrane fuel cell on a multiple time scale
Wang Ji-Kang Li Hua Peng Yu-Fei Li Xiao-Yan Zhang Xin-Yu

GEOPHYSICS, ASTRONOMY, AND ASTROPHYSICS

- 159101 Research on rapid surveying and mapping of outfield absolute gravity based on vehicle-mounted atomic gravimeter
Wang Kai-Nan Xu Han Zhou Yin Xu Yun-Peng Song Wei Tang Hong-Zhi Wang Qiao-Wei Zhu Dong Weng Kan-Xing Wang He-Lin Peng Shu-Ping Wang Xiao-Long Cheng Bing Li De-Zhao Qiao Zhong-Kun Wu Bin Lin Qiang
- 159501 Tomographic imaging for solar extreme ultraviolet He II 30.4 nm and spectral data inversion
Xing Yang-Guang Peng Ji-Long Duan Zi-Wen Yan Lei Li Lin Liu Yue

ERRATA

- 159901 Erratum: Uncertainty of optical feedback linear cavity ringdown spectroscopy [Acta Phys. Sin. 2022, 71(12): 124201]
Wang Xing-Ping Zhao Gang Jiao Kang Chen Bing Kan Rui-Feng Liu Jian-Guo Ma Wei-Guang

Color figures can be viewed in the online issue.



Online issue