

# 物 理 学 报

第 72 卷 第 17 期 2023 年 9 月 5 日

## 目 次

### 专题: 拓扑量子输运和器件

#### 综述

- 177101 拓扑激子绝缘体的实验进展 ..... 黄月蕾 单寅飞 杜灵杰 杜瑞瑞  
177103 磁性拓扑材料中贝利曲率驱动的非常规电输运行为 ..... 杨金颖 王彬彬 刘恩克  
177301 磁性拓扑绝缘体中的量子输运现象 ..... 刘畅 王亚愚  
177302 拓扑绝缘体中量子霍尔效应的研究进展 ..... 张帅 宋凤麒  
177303 狄拉克量子材料中的输运理论进展 ..... 王焕文 付博 沈顺清  
177401 马约拉纳零能模的输运探测 ..... 徐磊 李沛岭 吕昭征 沈洁 屈凡明 刘广同 吕力  
研究论文  
177202 自旋筒并节线半金属中表面态诱导的自旋相关散射 ..... 刘力硕 陈伟

#### 综述

- 174202 集成二维材料非线性光学特性研究进展 ..... 刘宁 刘肯 朱志宏  
178701 超高时空分辨显微成像技术研究进展 ..... 韦芊屹 倪洁蕾 李灵 张聿全 袁小聪 闵长俊

#### 总论

- 170301 基于广义等距张量的压缩多光子纠缠态量子密钥分发 ..... 赖红  
170302 热噪声环境下偶极场驱动的量子比特动力学 ..... 熊凡 陈永聪 敖平  
170501 粒子间长程相互作用以及晶格中孤立缺陷点对两硬核玻色子在一维晶格势阱中量子行走的影响···  
李艳

### 原子和分子物理学

- 173201 姜黄素与邻苯二酚共晶的太赫兹光谱 ..... 郑转平 刘榆杭 赵帅宇 蒋杰伟 卢乐

### 电磁学、光学、声学、传热学、经典力学和流体动力学

- 174201 基于激光悬浮的单颗微米粒子/纳米团簇的散射强度分布测量·····  
黄雪峰 陈鑫 李嘉欣 张敏琦 李盛姬  
174203 基于旋转多普勒效应的自旋目标转速估计方法 ..... 印必还 何姿 丁大志  
174204 构建  $\text{NaErF}_4@ \text{NaYbF}_4: 2\% \text{Er}^{3+}$  核壳结构增强  $\text{Er}^{3+}$  离子红光上转换发射 .....  
高伟 骆一帆 邢宇 丁鹏 陈斌辉 韩庆艳 严学文 张成云 董军  
174205 基于零折射率介质的超窄带光学滤波器 ..... 周晓霞 陈英 蔡力  
174206 基于 LCP/TLC 的复合多维偏振型防伪器件 ..... 朱雨雯 袁丛龙 刘炳辉 王骁乾 郑致刚

### 气体、等离子体和放电物理

- 175201 霍尔推力器放电通道低频振荡特性及抑制方法 ··· 陈龙 王迪雅 陈俊宇 段萍 杨叶慧 檀聪琦

- 175202 表面等离激元与入射光共同作用下的金纳米结构近场调控 ..... 王悦 王伦 孙柏逊 郎鹏 徐洋 赵振龙 宋晓伟 季博宇 林景全
- 175203 双锥对撞点火实验中的交叉束能量转移与背向受激布里渊散射 ..... 高凡 袁鹏 黄浩彬 寇琦 贾青 远晓辉 张喆 张杰 郑坚
- 175204 放电室长度对电子回旋共振离子推力器性能的影响机理 ..... 付瑜亮 杨涓 夏旭 孙安邦
- 175205 一种用于强流脉冲离子束的束流输出稳定性实时监测方法 ..... 许莫非 于翔 张世健 Gennady Efimovich Remnev 乐小云

### 凝聚物质: 结构、力学和热学性质

- 176401 电场和加热器特性对饱和池沸腾传热影响的介观数值方法研究 ..... 胡剑 张森 姜钦
- 176801 钙钛矿超晶格材料界面二维电子气的调控 ..... 王继光 李琬玲 邱嘉图 陈许敏 曹东兴

### 凝聚物质: 电子结构、电学、磁学和光学性质

- 177102  $\text{Co}_3\text{Sn}_2\text{S}_2$  单晶的磁性和电-热输运性能 ..... 祝鑫强 王剑 朱璨 罗丰 陈树权 徐佳辉 徐峰 王嘉赋 张艳 孙志刚
- 177201 激基复合物有机发光二极管中平衡载流子增强电荷转移态的反向系间窜越过程 ..... 王辉耀 魏福贤 吴雨廷 彭腾 刘俊宏 汪波 熊祖洪
- 177701 聚合物分散液晶薄膜的极化特性及其对电光性能的影响 ..... 陈昊鹏 聂永杰 李国倡 魏艳慧 胡昊 鲁广昊 李盛涛 朱远惟
- 177801  $\text{Sm}^{3+}$  掺杂  $0.94\text{Bi}_{0.5}\text{Na}_{0.5}\text{TiO}_3-0.06\text{BaTiO}_3$  无机多功能陶瓷的储能行为和光致发光性质 ..... 郑明 杨健 张怡笑 关鹏飞 程奥 范贺良
- 177802 电介质/金属/电介质膜系实现可见光波段高透兼容激光隐身研究 ..... 农洁 张伊祎 韦雪玲 姜鑫鹏 李宁 王冬迎 肖思洋 陈泓廷 张振荣 杨俊波

### 物理学交叉学科及有关科学技术领域

- 178101 GaAs 光电导开关非线性模式的雪崩畴运输机理 ... 田立强 潘璁 施卫 潘艺柯 冉恩泽 李存霞
- 178401 反应等离子体沉积二氧化锡电子传输层及其在钙钛矿太阳能电池中的应用 ..... 韩晓静 杨静 张佳莉 刘冬雪 石标 王鹏阳 赵颖 张晓丹
- 178501 基于湿法腐蚀凹槽阳极的低漏电高耐压 AlGaIn/GaN 肖特基二极管 ..... 武鹏 朱宏宇 吴金星 张涛 张进成 郝跃
- 178801 通过导纳谱表征铜铟镓硒电池中的缺陷 ..... 田小让 贾锐

文章图片的彩色效果详见网刊



扫码阅读  
电子版

# ACTA PHYSICA SINICA

Vol. 72, No. 17, September 5, 2023

## CONTENTS

### SPECIAL TOPIC—Quantum transport in topological materials and devices

#### REVIEW

- 177101 Experimental progress of topological exciton insulators  
*Huang Yue-Lei Shan Yin-Fei Du Ling-Jie Du Rui-Rui*
- 177103 Berry curvature induced unconventional electronic transport behaviors in magnetic topological semimetals  
*Yang Jin-Ying Wang Bin-Bin Liu En-Ke*
- 177301 Quantum transport phenomena in magnetic topological insulators  
*Liu Chang Wang Ya-Yu*
- 177302 Research progress of quantum Hall effect in topological insulator  
*Zhang Shuai Song Feng-Qi*
- 177303 Recent progress of transport theory in Dirac quantum materials  
*Wang Huan-Wen Fu Bo Shen Shun-Qing*
- 177401 Detecting Majorana zero modes with transport measurements  
*Xu Lei Li Pei-Ling Lü Zhao-Zheng Shen Jie Qu Fan-Ming Liu Guang-Tong Lü Li*

#### ARTICLE

- 177202 Spin-dependent scattering induced by surface states in spin-degenerate nodal-line semimetal  
*Liu Li-Shuo Chen Wei*

#### REVIEW

- 174202 Research progress of nonlinear optical properties of integrated two-dimensional materials  
*Liu Ning Liu Ken Zhu Zhi-Hong*
- 178701 Research progress of ultra-high spatiotemporally resolved microscopy  
*Wei Qian-Yi Ni Jie-Lei Li Ling Zhang Yu-Quan Yuan Xiao-Cong Min Chang-Jun*

#### GENERAL

- 170301 Generalized isometric tensor based quantum key distribution protocols of squeezed multiphoton entangled states  
*Lai Hong*
- 170302 Qubit dynamics driven by dipole field in thermal noise environment  
*Xiong Fan Chen Yong-Cong Ao Ping*
- 170501 Effects of long-range inter-particle interactions and isolated defect on quantum walks of two hard-core bosons in one-dimensional lattices  
*Li Yan*

#### ATOMIC AND MOLECULAR PHYSICS

- 173201 Terahertz spectra of curcumin and catechol co-crystals  
*Zheng Zhuan-Ping Liu Yu-Hang Zhao Shuai-Yu Jiang Jie-Wei Lu Le*  
(Continued)

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

- 174201 Measurement of scattering intensity distribution of single microparticles/nanoclusters based on laser levitation  
*Huang Xue-Feng Chen Chu Li Jia-Xin Zhang Min-Qi Li Sheng-Ji*
- 174203 Rotating speed estimation of spinning objects based on rotational Doppler effect  
*Yin Bi-Huan He Zi Ding Da-Zhi*
- 174204 Red upconversion emission of  $\text{Er}^{3+}$  enhanced by building  $\text{NaErF}_4@ \text{NaYbF}_4:2\%\text{Er}^{3+}$  core-shell structure  
*Gao Wei Luo Yi-Fan Xing Yu Ding Peng Chen Bin-Hui Han Qing-Yan Yan Xue-Wen Zhang Cheng-Yun Dong Jun*
- 174205 An ultra-narrow-band optical filter based on zero refractive index metamaterial  
*Zhou Xiao-Xia Chen Ying Cai Li*
- 174206 LCPP/TLC based composite multi-dimensional polarization-dependent anti-counterfeiting device  
*Zhu Yu-Wen Yuan Cong-Long Liu Bing-Hui Wang Xiao-Qian Zheng Zhi-Gang*

## PHYSICS OF GASES, PLASMAS, AND ELECTRIC DISCHARGES

- 175201 Characteristics and suppression methods of low-frequency oscillation in Hall thruster  
*Chen Long Wang Di-Ya Chen Jun-Yu Duan Ping Yang Ye-Hui Tan Cong-Qi*
- 175202 Near-field control of gold nanostructure under joint action of surface plasmon polariton and incident light  
*Wang Yue Wang Lun Sun Bai-Xun Lang Peng Xu Yang Zhao Zhen-Long Song Xiao-Wei Ji Bo-Yu Lin Jing-Quan*
- 175203 Cross beam energy transfer and backward stimulated Brillouin scattering in double-cone ignition experiment  
*Gao Fan Yuan Peng Huang Hao-Bin Kou Qi Jia Qing Yuan Xiao-Hui Zhang Zhe Zhang Jie Zheng Jian*
- 175204 Study on the effect of discharge chamber length on the performance of electron cyclotron resonance ion thruster  
*Fu Yu-Liang Yang Juan Xia Xu Sun An-Bang*
- 175205 A method of real-time monitoring beam output stability of intense pulsed ion beam  
*Xu Mo-Fei Yu Xiang Zhang Shi-Jian Gennady Efimovich Remnev Le Xiao-Yun*

## CONDENSED MATTER: STRUCTURAL, MECHANICAL, AND THERMAL PROPERTIES

- 176401 Mesoscopic study on effect of electric field and heater characteristics on saturated pool boiling heat transfer  
*Hu Jian Zhang Sen Lou Qin*
- 176801 Tuning two-dimensional electron gas at  $\text{LaAlO}_3/\text{KNbO}_3$  interface by strain gradient  
*Wang Ji-Guang Li Long-Ling Qiu Jia-Tu Chen Xu-Min Cao Dong-Xing*

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

- 177102 Magnetic and electrical-thermal transport properties of  $\text{Co}_3\text{Sn}_2\text{S}_2$  single crystal  
*Zhu Xin-Qiang Wang Jian Zhu Can Luo Feng Chen Shu-Quan Xu Jia-Hui Xu Feng Wang Jia-Fu Zhang Yan Sun Zhi-Gang*

(Continued)

- 177201 Enhanced reverse inter-system crossing process of charge-transfer stated induced by carrier balance in exciplex-type OLEDs  
*Wang Hui-Yao Wei Fu-Xian Wu Yu-Ting Peng Teng Liu Jun-Hong Wang Bo Xiong Zu-Hong*
- 177701 Polarization characteristics of polymer dispersed liquid crystal films and their effects on electro-optical properties  
*Chen Hao-Peng Nie Yong-Jie Li Guo-Chang Wei Yan-Hui Hu Hao Lu Guang-Hao Li Sheng-Tao Zhu Yuan-Wei*
- 177801 Energy storage and photoluminescence properties of  $\text{Sm}^{3+}$ -doped  $0.94\text{Bi}_{0.5}\text{Na}_{0.5}\text{TiO}_3$ - $0.06\text{BaTiO}_3$  multifunctional ceramics  
*Zheng Ming Yang Jian Zhang Yi-Xiao Guan Peng-Fei Cheng Ao Fan He-Liang*
- 177802 Research on realizing high permeability and laser stealth compatibility in visible light band with dielectric/metal/dielectric film system  
*Nong Jie Zhang Yi-Yi Wei Xue-Ling Jiang Xin-Peng Li Ning Wang Dong-Ying Xiao Si-Yang Chen Hong-Ting Zhang Zhen-Rong Yang Jun-Bo*

## INTERDISCIPLINARY PHYSICS AND RELATED AREAS OF SCIENCE AND TECHNOLOGY

- 178101 Mechanism of avalanche charge domain transport for nonlinear mode of GaAs photoconductive semiconductor switches  
*Tian Li-Qiang Pan Cong Shi Wei Pan Yi-Ke Ran En-Ze Li Cun-Xia*
- 178401 Electron transport layer of tin dioxide deposited by reactive plasma and its application in perovskite solar cells  
*Han Xiao-Jing Yang Jing Zhang Jia-Li Liu Dong-Xue Shi Biao Wang Peng-Yang Zhao Ying Zhang Xiao-Dan*
- 178501 Low leakage current and high breakdown voltage of AlGaIn/GaN Schottky barrier diodes with wet-etching groove anode  
*Wu Peng Zhu Hong-Yu Wu Jin-Xing Zhang Tao Zhang Jin-Cheng Hao Yue*
- 178801 Characterization of defects in CIGSe solar cells through admittance spectroscopy  
*Tian Xiao-Rang Jia Rui*

Color figures can be viewed in the online issue.



Online issue