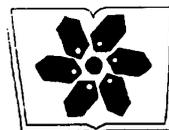


国家自然科学基金专项资助期刊

# 物 理 学 报

第 59 卷 第 7 期 2010 年 7 月



中国科学院科学出版基金资助出版

## 目 录

### 0000 总 论

- 0230 一类奇摄动非线性方程 Robin 问题激波的位置 ..... 莫嘉琪 刘树德 唐荣荣(4403)
- 0230 双参数奇摄动非线性反应扩散问题 ..... 陈怀军 莫嘉琪(4409)
- 0230 广义 Boussinesq 方程的无穷序列新精确解 ..... 套格图桑 斯仁道尔吉(4413)
- 0230 (3 + 1) 维 Burgers 系统的瞬内嵌孤子和瞬锥形孤子 ..... 马松华 方建平 任清褒(4420)
- 0250 区间衍生粒子滤波器 ..... 宁小磊 王宏力 张 琪 陈连华(4426)
- 0320 Rosenberg 问题的对称性与守恒量 ..... 葛伟宽 张 毅 薛 纭(4434)
- 0340D 力学、热力学及电磁波导中的正则变换和辛描述 ..... 杨红卫 钟万颢 侯碧辉(4437)
- 0340K 直立防波堤上部分反射的三阶双色双向水波理论 ..... 杨 丽 黄 虎(4442)
- 0367 两个 V 型三能级原子系统的纠缠突然死亡与复苏 ..... 魏 巧 鄢 嫣 李高翔(4453)
- 0540 非线性二极管系统构成的不可逆热机性能特征分析 .....  
..... 王秀梅 何济洲 何 弦 肖宇玲(4460)
- 0540 内部棘轮 ..... 吕 艳 王海燕 包景东(4466)
- 0545 基于神经网络的混沌时间序列奇异信号实时检测算法 ..... 刘金海 张化光 冯 健(4472)
- 0545 脑电信号的标度分析及其在睡眠状态区分中的应用 ..... 马千里 卞春华 王 俊(4480)
- 0547 二维映射神经元模型中的相干双共振 ..... 汪茂胜 黄万霞 崔执凤(4485)
- 0550 基于驾驶员行为的元胞自动机模型研究 ..... 郑 亮 马寿峰 贾 宁(4490)
- 0550 基于元胞自动机的行人视线受影响的疏散流仿真研究 .....  
..... 岳 昊 邵春福 关宏志 段龙梅(4499)
- 0570C  $H_2 + He$  流体混合物在部分解离区的物态方程 .....  
..... 顾云军 郑 君 陈志云 陈其峰 蔡灵仓(4508)
- 0590 国际石油价格复杂网络的动力学拓扑性质 ..... 陈卫东 徐 华 郭 琦(4514)
- 0670D 单行载流子光电探测器中空间电荷屏蔽效应理论分析和实验研究 .....  
..... 郭剑川 左玉华 张 云 张岭梓 成步文 王启明(4524)
- 0762 辐射探测芯片吸收膜理论设计及镍磷黑膜制备 .....  
..... 李亚楠 梁中翥 梁静秋 郑 娜 方 伟 王维彪 禹秉熙(4530)
- 2000 核物理学**
- 2920L 基于软 X 射线谱学显微双能衬度图像的元素空间分布研究 .....  
..... 张祥志 许子健 甄香君 王 勇 郭 智 严 睿 常 睿 周冉冉 邵仁忠(4535)
- 3000 原子和分子物理学**
- 3120  $MgB$  和  $MgB_2$  ( $A_1$ ) 的结构与解析势能函数 ..... 韩晓琴 蒋利娟 刘玉芳(4542)

- 3120A 全相对论多组态原子结构及物理量的精密计算——构建准完备基以及组态相互作用 .....  
 ..... 青波 程诚 高翔 张小乐 李家明(4547)
- 3120T LiC 分子基态及其低电子激发态的多参考组态相互作用方法研究 .....  
 ..... 陈恒杰 程新路 唐海燕 王全武 苏欣纺(4556)
- 3280 中红外组合激光场调控宽带超连续谱的产生 ..... 陈东 余本海 汤清彬(4564)
- 3290 基于激光诱导击穿光谱技术的铝合金成分定量分析 .....  
 ..... 孙对兄 苏茂根 董晨钟 王向丽 张大成 马新文(4571)
- 3310  $\text{Li}_2$  部分电子态的完全振动能与解能的精确研究 .....  
 ..... 樊群超 孙卫国 李会东 冯灏(4577)
- 3365F 低速高电荷态重离子辐照的 GaN 晶体表面 X 射线光电子能谱研究 .....  
 ..... 韩录会 张崇宏 张丽卿 杨义涛 宋银 孙友梅(4584)
- 3450 氮同位素原子与钠分子碰撞转动激发积分散射截面的理论计算 .....  
 ..... 李文峰 令狐荣锋 程新路 杨向东(4591)
- 3640  $(\text{SiO}_2)_n^- (n \leq 7)$  团簇的密度泛函研究 .....  
 ..... 张岩 陈雪凤 齐凯天 李兵 杨传路 盛勇(4598)
- 4000 唯象论的经典领域**
- 4110H 一种新型异向介质设计及实验验证 ..... 孙永志 冉立新 王东兴 王伟光 陈秋林(4602)
- 4110H 微波超材料隐形结构及其新型快速实验方案 ..... 闻孺铭 李凌云 韩克武 孙晓玮(4607)
- 4170 基于损耗介质加载波导的回旋行波管放大器的相互作用分析 ..... 杜朝海 刘濮鲲 薛谦忠(4612)
- 4180D 重频直线变压器长脉冲高功率微波驱动源研究 ..... 向飞 谭杰  
 张永辉 王淦平 罗敏 曹绍云 康强 龚胜刚 罗光耀 李春霞 金晖 张北镇(4620)
- 4180D 准矩形截面强流相对论带状电子束的传输 ..... 杜广星 钱宝良(4626)
- 4220 激光光斑形状和尺寸对扫描显示中散斑对比度的影响 .....  
 ..... 常宏 杨福桂 董磊 王安廷 谢建平 明海(4634)
- 4225B  $\text{PbB}_4\text{O}_7$  晶体的太赫兹光谱和软光学声子 .....  
 ..... 侯碧辉 曹彦珍 王雅丽 张尔攀 傅佩珍 汪力 钟任斌(4640)
- 4230 散射光彩色数字全息光学系统及波面重建算法研究 .....  
 ..... 李俊昌 彭祖杰 Tankam Patrice Picart Pascal(4646)
- 4240J 全息干涉光学格点一到三维空间维度的简捷变换 ..... 王霞 王自霞 吕浩 赵秋玲(4656)
- 4250 广义压缩粒子数态的非经典性质及其退相干 ..... 徐学翔 袁洪春 胡利云(4661)
- 4255K 脉冲碘化学激光器的动力学模拟研究 .....  
 ..... 李国富 多丽萍 金玉奇 于海军 王德真 桑凤亭(4672)
- 4260H 真空环境中紫外脉冲激光对熔石英抗损伤能力的影响 .....  
 ..... 黄进 蒋晓东 刘红婕 吕海兵 王海军 袁晓东 郑万国(4677)
- 4265 基于拉曼组合放大的长距离光纤传输系统 .....  
 ..... 饶云江 李立 贾新鸿 冉曾令 张田虎(4682)
- 4265 激发态分子内质子转移有机分子 HBT 的三阶非线性光学特性 .....  
 ..... 郑加金 陆云清 李培丽(4687)
- 4265C 矩形谱宽带光抽运的布里渊慢光中脉冲失真的分析 .....  
 ..... 张旨遥 周晓军 石胜辉 梁锐(4694)
- 4265S 含分压电阻的非相干耦合光折变屏蔽光伏空间孤子对 ..... 吉选芒 姜其畅 刘劲松(4701)
- 4265S 非局域非线性克尔介质中两极孤子的变分解 ..... 杨振军 李少华 陆大全 胡巍(4707)

- 4270Y 小型化电谐振人工特异材料研究 ..... 唐明春 肖绍球 邓天伟 柏艳英 官 剑 王秉中(4715)
- 4280M 反常色散锥形微结构光纤中高效率脉冲压缩研究 ..... 马文文 李曙光 尹国冰 冯荣普 付 博(4720)
- 4280M 三种典型结构光子晶体光纤基本特性的比较和分析 ..... 姜凌红 侯蓝田 杨倩倩(4726)
- 4281D 基于光子晶体光纤模间干涉的折射率测量灵敏度分析 ..... 侯建平 宁 韬 盖双龙 李 鹏 郝建苹 赵建林(4732)
- 4360 基于时域多普勒修正的运动声全息识别方法 ..... 杨殿阁 罗禹贡 李 兵 李克强 连小珉(4738)
- 4725 平面射流沿轴线的特征尺度及其对测量信号过滤程度的依赖 ..... 米建春 冯宝平(4748)
- 4735 正压流体中具有  $\beta$  效应与地形效应的强迫 Rossby 孤立波 ..... 宋 健 赖俊峰(4756)
- 5000 流体、等离子体和放电**
- 5120 冲击压缩下物质黏性系数与冲击波阵面扰动衰减特性研究 ..... 马小娟 刘福生 李一磊 张明建 李永宏 孙燕云 彭小娟 经福谦(4761)
- 5270 X 射线激光对激光烧蚀薄片靶的阴影成像研究 ..... 王 琛 郑无敌 方智恒 孙今人 王 伟 熊 俊 傅思祖 顾 援 王世绩 乔秀梅 张国平(4767)
- 6000 凝聚物质: 结构、热学和力学性质**
- 6110 Mn 掺杂 SiC 磁性薄膜的结构表征 ..... 唐 军 刘忠良 任 鹏 姚 涛 闫文盛 徐彭寿 韦世强(4774)
- 6146 纳米多晶金属样本构建的分子动力学模拟研究 ..... 马 文 祝文军 张亚林 陈开果 邓小良 经福谦(4781)
- 6146 硼(氮、氟)掺杂对 TiO<sub>2</sub> 纳米颗粒光学性能的影响 ..... 吴雪炜 吴大建 刘晓峻(4788)
- 6146 一维 Ni<sub>0.5</sub>Zn<sub>0.5</sub>Fe<sub>2</sub>O<sub>4</sub>/SiO<sub>2</sub> 复合纳米结构的制备及其磁性能 ..... 向 军 宋福展 沈湘黔 褚艳秋(4794)
- 6150C 衬底加温和后续热退火法形成纳米硅晶粒成核势垒的比较 ..... 邓泽超 罗青山 褚立志 丁学成 梁伟华 傅广生 王英龙(4802)
- 6150L 钙钛矿铁电体原子势参数的灵敏度分析及优化 ..... 肖松青 谢国锋(4808)
- 6170R 氟离子掺杂铈酸铅闪烁晶体的发光特性 ..... 任国浩 陈晓峰 毛日华 沈定中(4812)
- 6172Q 嵌入原子法计算金属钪中点缺陷的能量 ..... 敖冰云 汪小琳 陈丕恒 史 鹏 胡望宇 杨剑瑜(4818)
- 6180J 高功率离子束辐照膜基双层靶温度场的数值研究 ..... 吴 迪 官 野 雷明凯 刘金远 王晓钢 刘 悦 马腾才(4826)
- 6180J 离子注入 ZnO 薄膜的拉曼光谱研究 ..... 臧 航 王志光 庞立龙 魏孔芳 姚存峰 申铁龙 孙建荣 马艺准 缙 洁 盛彦斌 朱亚滨(4831)
- 6185 一种基于多目标约束的互连线宽和线间距优化模型 ..... 朱樟明 万达经 杨银堂(4837)
- 6185 硅基超晶格 Si<sub>1-x</sub>Sn<sub>x</sub>/Si 的能带结构 ..... 吕铁羽 陈 捷 黄美纯(4843)
- 6220M 多孔材料在压缩载荷作用下的剪切破坏模式分析 ..... 刘培生(4849)
- 6320K 声子和磁场对量子环中极化子性质的影响 ..... 赵翠兰 高宽云(4857)
- 6322 纤锌矿氮化物量子阱中光学声子模的三元混晶效应 ..... 屈 媛 班士良(4863)
- 6460A 三维钻石型等级晶格上量子 Heisenberg 系统的临界性质 ..... 邹维科 孔祥木 王春阳 高中扬(4874)
- 6470 从常温常压到超临界乙醇的分子动力学模拟 ..... 李 勇 刘锦超 芦鹏飞 杨向东(4880)

- 6470K 单轴应变驱动铁 bcc—hcp 相转变的微观模拟 ..... 邵建立 何安民 段素青 王 斐 秦承森(4888)
- 6630Q 基于 RLC  $\pi$  型等效模型的互连网络精确焦耳热功耗计算 ..... 朱樟明 钟 波 杨银堂(4895)
- 6855  $\text{SiH}_4/\text{H}_2$  等离子体气相生长硅薄膜的动力学模型 ..... 文书堂 张红卫 张丽伟 陈改荣 卢景霄(4901)
- 7000 凝聚物质:电子结构、电学、磁学和光学性质**
- 7115H Cu 台阶面多层弛豫的第一性原理研究 ..... 舒 瑜 张建民 王国红 徐可为(4911)
- 7115M 几种三元过渡金属碳化物弹性及电子结构的第一性原理研究 ..... 杨天兴 成 强 许红斌 王溯旭(4919)
- 7115M In 掺杂 ZnO 电子结构的第一性原理研究 ..... 刘小村 季燕菊 赵俊卿 刘立强 孙兆鹏 董和磊(4925)
- 7115M 氮铁共掺锐钛矿相  $\text{TiO}_2$  电子结构和光学性质的第一性原理研究 ..... 张学军 高 攀 柳清菊(4930)
- 7115T Nb-Ti-Al 合金高温氧化机理电子理论研究 ..... 刘贵立 杨 杰(4939)
- 7125  $\text{UO}_2$  的电子结构及光学性质的第一性原理研究 ..... 陈秋云 赖新春 王小英 张永彬 谭世勇(4945)
- 7125X 分层掺 B 和吸附  $\text{H}_2\text{O}$  碳纳米管的结构稳定性及电子场发射性能 ..... 王益军 王六定 杨 敏 刘光清 严 诚(4950)
- 7125X Au 电极连接富勒烯  $\text{C}_{32}$  分子的电子结构与传输特性 ..... 霍新霞 王 畅 张秀梅 王利光(4955)
- 7135 非对称方势阱中的激子及其与声子的相互作用 ..... 邓艳平 吕彬彬 田 强(4961)
- 7155D 金阴极的选择性光电效应 ..... 袁 铮 刘慎业 曹柱荣 李云峰 陈 韬 黎 航 张海鹰 陈 铭(4967)
- 7210 准一维多链无序体系跳跃电导特性 ..... 马松山 徐 慧 郭 锐 崔麦玲(4972)
- 7210 太赫兹场辅助的单量子阱自旋共振输运 ..... 张存喜 王 瑞 孔令民(4980)
- 7220 硼-碳和硼-氮量子点器件的输运特性研究 ..... 李桂琴(4985)
- 7280E 电极形状对 GaN 基发光二极管芯片性能的影响 ..... 宋雪云 张俊兵 曾祥华 董雅娟(4989)
- 7280E In 组分渐变提高 InGaN/GaN 多量子阱发光二极管发光性能 ..... 朱丽虹 蔡加法 李晓莹 邓 彪 刘宝林(4996)
- 7280E GaN 基白光发光二极管失效机理分析 ..... 薛正群 黄生荣 张保平 陈 朝(5002)
- 7335C 一种基于双栅材料的单极性类金属氧化物半导体碳纳米管场效应管设计方法 ..... 周海亮 张民选 方 粮(5010)
- 7360  $\text{In}_2\text{O}_3$  透明薄膜晶体管的制备及其电学性能的研究 ..... 徐天宁 吴惠桢 张莹莹 王 雄 朱夏明 原子健(5018)
- 7360D 一种圆孔单元厚屏频率选择表面结构的传输特性研究 ..... 方春易 张树仁 卢 俊 汪剑波 孙连春(5023)
- 7470V 用顶部籽晶熔渗生长工艺由新成分液相源制备单畴 GdBCO 超导块材 ... 李国政 杨万民(5028)
- 7475 蓝宝石基片上制备大面积  $\text{Tl}_2\text{Ba}_2\text{CaCu}_2\text{O}_8$  超导薄膜 ..... 游 峰 季 鲁 谢清连 王 争 岳宏卫 赵新杰 方 兰 阎少林(5035)
- 7490 用于高温射频超导量子干涉器的介质谐振器的性质研究 ..... 高 吉 杨 涛 马 平 戴远东(5044)
- 7540 非晶丝端部磁场效应的模拟 ..... 庞 浩 杨 钰 王赞基(5049)

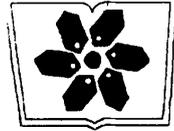
- 7580 磁电薄膜与微波作用研究 ..... 郑 鸿 杨成韬(5055)
- 7750 有序结构氟聚合物压电驻极体的制备和压电性研究 .....  
..... 孙转兰 张晓青 曹功勋 王学文 夏钟福(5061)
- 7755 电介质陷阱能量分布的光刺激放电法实验研究 ..... 朱智恩 张治文 安振连 郑飞虎(5067)
- 7820P 介质柱型二维 Triangular 格子光子晶体的禁带特性 .....  
..... 杨毅彪 王拴锋 李秀杰 王云才 梁 伟(5073)
- 7830 自旋梯状化合物  $Sr_{14}Cu_{24}O_{41+x}$  的 Raman 散射谱的研究 ..... 程 莉 熊 锐 石 兢(5078)
- 7830  $KTa_{1-x}Nb_xO_3$  晶体生长固/液边界层结构的微区研究 .....  
..... 周文平 万松明 张庆礼 殷绍唐 尤静林 王媛媛(5085)
- 7830G 掺钕的纳米相氟氧化物玻璃陶瓷的多光子红外量子剪裁 .....  
..... 陈晓波 廖红波 张春林 于春雷 潘 伟 胡丽丽 吴正龙(5091)
- 7855 应用导数荧光光谱和概率神经网络鉴别合成色素 .....  
..... 陈国庆 吴亚敏 魏柏林 刘慧娟 高淑梅 孔 艳 朱 拓(5100)
- 7865 表面等离子激元调制的亚波长束斑半导体激光器 .....  
..... 宋国峰 汪卫敏 蔡利康 郭宝山 王 青 徐 云 韦 欣 刘运涛(5105)
- 7865 基于二维结构薄膜的偏振选择相位光栅的研究 .....  
..... 厉以宇 王媛媛 陈 浩 朱德喜 胡 川 瞿 佳(5110)
- 7870B 正电子湮没谱和光致发光谱研究掺锌 GaSb 质子辐照缺陷 ..... 周 凯 李 辉 王 柱(5116)
- 8000 物理学交叉学科及有关科学技术领域**
- 8140T 激光诱导 HF 酸刻蚀后熔石英后表面划痕的损伤行为研究 .....  
..... 王凤蕊 黄 进 刘红婕 周信达 蒋晓东 吴卫东 郑万国(5122)
- 8220H  $FC(O)O_2$  的结构及其自由基与 NO 反应的微观机理研究 .....  
..... 周 翔 张 董 刘爱芬 曾祥华(5128)
- 8630D  $LiFePO_4$  中对位缺陷的第一性原理研究 ..... 张 华 唐元昊 周薇薇 李沛娟 施思齐(5135)
- 8630J 调制光/电作用下染料敏化太阳能电池中电荷传输和界面转移研究.....  
..... 刘伟庆 寇东星 胡林华 黄 阳 姜年权 戴松元(5141)
- 8670E 碳纳米胶囊中水分子的分子动力学研究 .....  
..... 陈 明 闵 锐 周俊明 胡 浩 林 波 缪 灵 江建军(5148)
- 8670L 一种新型光学多通池系统应用于烟雾箱内挥发性有机化合物探测 .....  
..... 杨西斌 赵卫雄 陶 玲 高晓明 张为俊(5154)
- 8710 运动后人体心肺节律同步关系及信号的耦合方向 ..... 曹寅文 宋慎义 肖井华(5163)
- 9000 地球物理学、天文学和天体物理学**
- 9635P 超强磁场对中性星外壳层核素  $^{56}Fe$ ,  $^{56}Co$ ,  $^{56}Ni$ ,  $^{56}Mn$  和  $^{56}Cr$  电子俘获过程中微子能量损失的影响  
..... 刘晶晶(5169)



Supported by the National Natural  
Science Foundation of China



**ACTA PHYSICA SINICA**  
**Vol. 59, No. 7, July 2010**  
**CONTENTS**



Supported by the Science Publication  
Foundation, Chinese Academy of Sciences

**0000 GENERAL**

- 0230 Shock position for a class of Robin problems of singularly perturbed nonlinear equation .....  
..... *Mo Jia-Qi, Liu Shu-De, Tang Rong-Rong*(4408)
- 0230 Singularly perturbed nonlinear reaction diffusion problem with two parameters .....  
..... *Chen Huai-Jun, Mo Jia-Qi*(4412)
- 0230 New exact infinite sequence solutions to generalized Boussinesq equation .....  
..... *Taogetusang, Sirendaorji*(4419)
- 0230 Instantaneous embed soliton and instantaneous taper-like soliton for the (3 + 1)-dimensional Burgers system  
..... *Ma Song-Hua, Fang Jian-Ping, Ren Qing-Bao*(4425)
- 0250 Interval diffracted particle filter ..... *Ning Xiao-Lei, Wang Hong-Li, Zhang Qi, Chen Lian-Hua*(4433)
- 0320 Symmetries and conserved quantities of the Rosenberg problem .....  
..... *Ge Wei-Kuan, Zhang Yi, Xue Yun*(4436)
- 0340D The canonical transformation and symplectic description in mechanics, thermodynamics and electromagnetic  
waveguide ..... *Yang Hong-Wei, Zhong Wan-Xie, Hou Bi-Hui*(4441)
- 0340K Third-order theory for bichromatic bidirectional water waves partially reflected from vertical breakwaters  
..... *Yang Li, Huang Hu*(4452)
- 0367 Sudden death and revival of entanglement in two V-type three-level atoms .....  
..... *Wei Qiao, Yan Yan, Li Gao-Xiang*(4459)
- 0540 Performance characteristics of an irreversible engine consisting of nonlinear diodes system .....  
..... *Wang Xiu-Mei, He Ji-Zhou, He Xian, Xiao Yu-Ling*(4465)
- 0540 Internal ratchet ..... *Lü Yan, Wang Hai-Yan, Bao Jing-Dong*(4471)
- 0545 Real-time novelty detector of chaotic time series based on retina neural network .....  
..... *Liu Jin-Hai, Zhang Hua-Guang, Feng Jian*(4479)
- 0545 Scaling analysis on electroencephalogram and its application to sleep-staging .....  
..... *Ma Qian-Li, Bian Chun-Hua, Wang Jun*(4484)
- 0547 Coherence bi-resonance in a two-dimensional neural map .....  
..... *Wang Mao-Sheng, Huang Wan-Xia, Cui Zhi-Feng*(4489)
- 0550 The cellular automaton model of traffic flow based on the driving behavior .....  
..... *Zheng Liang, Ma Shou-Feng, Jia Ning*(4498)
- 0550 Simulation of pedestrian evacuation flow with affected visual field using cellular automata .....  
..... *Yue Hao, Shao Chun-Fu, Guan Hong-Zhi, Duan Long-Mei*(4507)
- 0570C The equation of state of  $H_2 + He$  fluid mixture in the region of partial dissociation .....  
..... *Gu Yun-Jun, Zheng Jun, Chen Zhi-Yun, Chen Qi-Feng, Cai Ling-Cang*(4513)
- 0590 Dynamic analysis on the topological properties of the complex network of international oil prices .....  
(Continued)

- ..... *Shu Yu, Zhang Jian-Min, Wang Guo-Hong, Xu Ke-Wei*(4918)
- 7115M First-principles study of elastic and electronic properties of several ternary transition-metal carbides  
..... *Yang Tian-Xing, Cheng Qiang, Xu Hong-Bin, Wang Yuan-Xu*(4924)
- 7115M First-principles study on electronic structure of In-doped wurtzite ZnO .....  
..... *Liu Xiao-Cun, Ji Yan-Ju, Zhao Jun-Qing, Liu Li-Qiang, Sun Zhao-Peng, Dong He-Lei*(4929)
- 7115M First-principles study on electronic structure and optical properties of anatase TiO<sub>2</sub> codoped with nitrogen  
and iron ..... *Zhang Xue-Jun, Gao Pan, Liu Qing-Ju*(4938)
- 7115T Electronic theory study on high temperature oxidation mechanism of Nb-Ti-Al alloy .....  
..... *Liu Gui-Li, Yang Jie*(4944)
- 7125 First-principles study of the electronic structure and optical properties of UO<sub>2</sub> .....  
..... *Chen Qiu-Yun, Lai Xin-Chun, Wang Xiao-Ying, Zhang Yong-Bin, Tan Shi-Yong*(4949)
- 7125X Structural stability and field emission properties of carbon nanotubes doped by a boron atom and adsorbed  
with several H<sub>2</sub>O molecules .....  
..... *Wang Yi-Jun, Wang Liu-Ding, Yang Min, Liu Guang-Qing, Yan Cheng*(4954)
- 7125X Electron structure and electron conductance of fullerene C<sub>32</sub> with Au electrodes .....  
..... *Huo Xin-Xia, Wang Chang, Zhang Xiu-Mei, Wang Li-Guang*(4960)
- 7135 Excitons and effects of phonons on excitons in asymmetric square quantum well .....  
..... *Deng Yan-Ping, Lü Bin-Bin, Tian Qiang*(4966)
- 7155D Selective photoemission of Au photocathode ..... *Yuan Zheng,*  
*Liu Shen-Ye, Cao Zhu-Rong, Li Yun-Feng, Chen Tao, Li Hang, Zhang Hai-Ying, Chen Ming*(4971)
- 7210 Theoretical study on the hopping conductivity of quasi-one-dimensional disordered systems .....  
..... *Ma Song-Shan, Xu Hui, Guo Rui, Cui Mai-Ling*(4979)
- 7210 Photon-mediated electron transport through a quantum well in an intense terahertz field with spin-orbit  
coupling ..... *Zhang Cun-Xi, Wang Rui, Kong Ling-Min*(4984)
- 7220 Transport properties of boron-carbon and boron-nitride quantum dot device ..... *Li Gui-Qin*(4988)
- 7280E Effects of electrode shape on the properties of GaN-based light-emitting diode .....  
..... *Song Xue-Yun, Zhang Jun-Bing, Zeng Xiang-Hua, Dong Ya-Juan*(4995)
- 7280E Luminous performance improvement of InGaN/GaN light-emitting diodes by modulating In content in well  
layers ..... *Zhu Li-Hong, Cai Jia-Fa, Li Xiao-Ying, Deng Biao, Liu Bao-Lin*(5001)
- 7280E Analysis of failure mechanism of GaN-based white light-emitting diode .....  
..... *Xue Zheng-Qun, Huang Sheng-Rong, Zhang Bao-Ping, Chen Chao*(5009)
- 7335C Dual-gate-material-based device design for unipolar metal oxide semiconductor-like carbon nanotube field  
effect transistors ..... *Zhou Hai-Liang, Zhang Min-Xuan, Fang Liang*(5017)
- 7360 Fabrication and performance of indium oxide based transparent thin film transistors .....  
..... *Xu Tian-Ning, Wu Hui-Zhen, Zhang Ying-Ying, Wang Xiong, Zhu Xia-Ming, Yuan Zi-Jian*(5022)
- 7360D Transmission properties of thick-screen frequency selective surface having circular hole elements .....  
..... *Fang Chun-Yi, Zhang Shu-Ren, Lu Jun, Wang Jian-Bo, Sun Lian-Chun*(5027)
- 7470V Fabrication of single-domain GdBCO bulk superconductors using new liquid sources by the top seeded  
infiltration and growth technique ..... *Li Guo-Zheng, Yang Wan-Min*(5034)
- 7475 Fabrication and properties of large area Tl<sub>2</sub>Ba<sub>2</sub>CaCu<sub>2</sub>O<sub>8</sub> superconducting thin film on sapphire substrate  
..... *You Feng,*  
*Ji Lu, Xie Qing-Lian, Wang Zheng, Yue Hong-Wei, Zhao Xin-Jie, Fang Lan, Yan Shao-Lin*(5043)
- 7490 Characteristics of dielectric resonators for high-transition-temperature radio frequency superconducting  
quantum interference devices ..... *Gao Ji, Yang Tao, Ma Ping, Dai Yuan-Dong*(5048)

(Continued)

- 6000 CONDENSED MATTER;STRUCTURE, THERMAL AND MECHANICAL PROPERTIES**
- 6110 Structural characterization of Mn doped SiC magnetic thin films .....  
*Tang Jun, Liu Zhong-Liang, Ren Peng, Yao Tao, Yan Wen-Sheng, Xu Peng-Shou, Wei Shi-Qiang*(4780)
- 6146 Construction of metallic nanocrystalline samples by molecular dynamics simulation .....  
 ..... *Ma Wen, Zhu Wen-Jun, Zhang Ya-Lin, Chen Kai-Guo, Deng Xiao-Liang, Jing Fu-Qian*(4787)
- 6146 Effects of B (N, F) doping on optical properties of TiO<sub>2</sub> nanoparticles .....  
 ..... *Wu Xue-Wei, Wu Da-Jian, Liu Xiao-Jun*(4793)
- 6146 Preparation of one-dimensional Ni<sub>0.3</sub>Zn<sub>0.3</sub>Fe<sub>2</sub>O<sub>4</sub>/SiO<sub>2</sub> composite nanostructures and their magnetic properties  
 ..... *Xiang Jun, Song Fu-Zhan, Shen Xiang-Qian, Chu Yan-Qiu* (4801)
- 6150C Comparison of nucleation energy of nanoparticles Si formation in substrate heating and subsequent thermal  
 annealing ..... *Deng Ze-Chao, Luo Qing-Shan,*  
*Chu Li-Zhi, Ding Xue-Cheng, Liang Wei-Hua, Fu Guang-Sheng, Wang Ying-Long* (4807)
- 6150L Sensitivity analysis and optimization of interatomic potential parameters for perovskites .....  
 ..... *Xiao Song-Qing, Xie Guo-Feng*(4811)
- 6170R Luminescence characteristics of lead tungstate (PbWO<sub>4</sub>) scintillation crystal doped with fluorine anions  
 ..... *Ren Guo-Hao, Chen Xiao-Feng, Mao Ri-Hua, Shen Ding-Zhong*(4817)
- 6172Q Energy calculation of point defects in plutonium by embedded atom method .....  
 ..... *Ao Bing-Yun, Wang Xiao-Lin, Chen Pi-Heng, Shi Peng, Hu Wang-Yu, Yang Jian-Yu*(4825)
- 6180J Numerical study on the evolution of temperature of double-layer target irradiated by high power ion beam  
 ..... *Wu Di, Gong Ye, Lei Ming-Kai, Liu Jin-Yuan, Wang Xiao-Gang, Liu Yue, Ma Teng-Cai*(4830)
- 6180J Raman investigation of ion-implanted ZnO films .....  
 ..... *Zang Hang, Wang Zhi-Guang, Pang Li-Long, Wei Kong-Fang,*  
*Yao Cun-Feng, Shen Tie-Long, Sun Jian-Rong, Ma Yi-Zhun, Gou Jie, Sheng Yan-Bin, Zhu Ya-Bin*(4836)
- 6185 An optimization model of wire size for multi-objective constraint .....  
 ..... *Zhu Zhang-Ming, Wan Da-Jing, Yang Yin-Tang*(4842)
- 6185 Band structure of Si-based superlattices Si<sub>1-x</sub>Sn<sub>x</sub>/Si ..... *Lü Tie-Yu, Chen Jie, Huang Mei-Chun*(4848)
- 6220M Analysis of shearing failure mode for porous materials under compression ..... *Liu Pei-Sheng*(4856)
- 6320K Influence of phonon and magnetic field on property of polaron in quantum ring .....  
 ..... *Zhao Cui-Lan, Gao Kuan-Yun*(4862)
- 6322 Effect of ternary mixed crystals on optical phonon modes in wurtzite nitride quantum well .....  
 ..... *Qu Yuan, Ban Shi-Liang*(4873)
- 6460A Critical behavior of the quantum Heisenberg model on three-dimensional diamond-type hierarchical lattice  
 ..... *Zou Wei-Ke, Kong Xiang-Mu, Wang Chun-Yang, Gao Zhong-Yang*(4879)
- 6470 Molecular dynamic simulation of ethanol from ambient temperature and pressure to supercritical conditions  
 ..... *Li Yong, Liu Jin-Chao, Lu Peng-Fei, Yang Xiang-Dong*(4887)
- 6470K Atomistic simulation of the bcc—hcp transition in iron driven by uniaxial strain .....  
 ..... *Shao Jian-Li, He An-Min, Duan Su-Qing, Wang Pei, Qin Cheng-Sen*(4894)
- 6630Q An accurate Joule heat model of RLC interconnect based on  $\pi$  equivalent circuit .....  
 ..... *Zhu Zhang-Ming, Zhong Bo, Yang Yin-Tang*(4900)
- 6855 A kinetic model for silicon film growth by silane/hydrogen glow discharge .....  
 ..... *Wen Shu-Tang, Zhang Hong-Wei, Zhang Li-Wei, Chen Gai-Rong, Lu Jing-Xiao*(4910)
- 7000 CONDENSED MATTER;ELECTRONIC STRUCTURE,ELECTRICAL,MAGNETIC,AND OPTICAL PROPERTIES**
- 7115H First-principles study of the multilayer relaxation of Cu stepped surfaces .....  
 (Continued)

- 4225B Terahertz spectra and soft optical phonons of  $\text{PbB}_2\text{O}_7$  crystal .....  
*Hou Bi-Hui, Jian Yan-Zhen, Wang Ya-Li, Zhang Er-Pan, Fu Pei-Zhen, Wang Li, Zhong Ren-Bin*(4645)
- 4230 An optical system of scattered light digital color holography and its wave front reconstruction algorithm  
 ..... *Li Jun-Chang, Peng Zu-Jie, Tankam Patrice, Picart Pascal*(4655)
- 4240J Short-cut transformation from one-dimensional to three-dimensional interference pattern by holographic  
 simulation ..... *Wang Xia, Wang Zi-Xia, Lü Hao, Zhao Qiu-Ling*(4660)
- 4250 Nonclassicality and decoherence of generalized squeezed Fock state .....  
 ..... *Xu Xue-Xiang, Yuan Hong-Chun, Hu Li-Yun*(4671)
- 4255K Dynamical simulation of pulsed chemical oxygen-iodine laser .....  
 ..... *Li Guo-Fu, Duo Li-Ping, Jin Yu-Qi, Yu Hai-Jun, Wang De-Zhen, Sang Feng-Ting*(4676)
- 4260H Influence of ultraviolet pulse laser irradiation on fused silica anti-damage ability in high vacuum environment  
 ..... *Huang Jin,*  
*Jiang Xiao-Dong, Liu Hong-Jie, Lü Hai-Bing, Wang Hai-Jun, Yuan Xiao-Dong, Zheng Wan-Guo*(4681)
- 4265 Long-distance optical fiber transmission system based on hybrid Raman amplification .....  
 ..... *Rao Yun-Jiang, Li Li, Jia Xin-Hong, Ran Zeng-Ling, Zhang Tian-Hu*(4686)
- 4265 Optical nonlinearities of excited state intramolecular proton transfer molecule HBT .....  
 ..... *Zheng Jia-Jin, Lu Yun-Qing, Li Pei-Li*(4693)
- 4265C Analysis of pulse distortion in Brillouin slow light using broadband pump with rectangular spectrum  
 ..... *Zhang Zhi-Yao, Zhou Xiao-Jun, Shi Sheng-Hui, Liang Rui*(4700)
- 4265S Incoherently coupled screening photovoltaic spatial soliton pairs with a divider resistance .....  
 ..... *Ji Xuan-Mang, Jiang Qi-Chang, Liu Jin-Song*(4706)
- 4265S Variational analysis of dipole soliton in nonlocal nonlinear Kerr media .....  
 ..... *Yang Zhen-Jun, Li Shao-Hua, Lu Da-Quan, Hu Wei*(4714)
- 4270Y Miniaturized electric resonance metamaterial .....  
*Tang Ming-Chun, Xiao Shao-Qiu, Deng Tian-Wei, Bai Yan-Ying, Guan Jian, Wang Bing-Zhong*(4719)
- 4280M High efficiency pulse compression in tapered microstructure fibers in anomalous dispersion region ...  
 ..... *Ma Wen-Wen, Li Shu-Guang, Yin Guo-Bing, Feng Rong-Pu, Fu Bo*(4725)
- 4280M Comparison and analysis of the basic characteristics of photonic crystal fiber with three typical structures  
 ..... *Jiang Ling-Hong, Hou Lan-Tian, Yang Qian-Qian*(4731)
- 4281D Sensitivity analysis of refractive index measurement based on intermodal interference in photonic crystal  
 fiber ..... *Hou Jian-Ping, Ning Tao, Gai Shuang-Long, Li Peng, Hao Jian-Ping, Zhao Jian-Lin*(4737)
- 4360 Acoustic holography method for measuring moving sound source with correction for Doppler effect in time-  
 domain ..... *Yang Dian-Ge, Luo Yu-Gong, Li Bing, Li Ke-Qiang, Lian Xiao-Min*(4747)
- 4725 Centerline characteristic scales of a turbulent plane jet and their dependence on filtration of measured  
 signals ..... *Mi Jian-Chun, Feng Bao-Ping*(4755)
- 4735 Forced solitary Rossby wave with beta effect and topography effect in barotropic flows .....  
 ..... *Song Jian, Lai Jun-Feng*(4760)
- 5000 FLUIDS, PLASMAS AND ELECTRIC DISCHARGES**
- 5120 Quantitative relation between the viscosity coefficient of substances under shock compression and the  
 disturbance damping of shock front ..... *Ma Xiao-Juan, Liu Fu-Sheng,*  
*Li Yi-Lei, Zhang Ming-Jian, Li Yong-Hong, Sun Yan-Yun, Peng Xiao-Juan, Jing Fu-Qian*(4766)
- 5270 Shadow imaging studies on laser-ablated foil target by using an X-ray laser .....  
 ..... *Wang Chen, Zheng Wu-Di, Fang Zhi-Heng, Sun Jin-Ren,*  
*Wang Wei, Xiong Jun, Fu Si-Zu, Gu Yuan, Wang Shi-Ji, Qiao Xiu-Mei, Zhang Guo-Ping*(4773)

(Continued)

- ..... *Chen Wei-Dong, Xu Hua, Guo Qi*(4523)
- 0670D Theoretical analysis and experimental study of the space-charge-screening effect in uni-traveling-carrier photodiode .....  
..... *Guo Jian-Chuan, Zuo Yu-Hua, Zhang Yun, Zhang Ling-Zi, Cheng Bu-Wen, Wang Qi-Ming*(4529)
- 0762 Design and preparation of black-nickel film on the radiometer chip .....  
*Li Ya-Nan, Liang Zhong-Zhu, Liang Jing-Qiu, Zheng Na, Fang Wei, Wang Wei-Biao, Yu Bing-Xi*(4534)
- 2000 NUCLEAR PHYSICS**
- 2920L Soft X-ray spectromicroscopy dual-energy contrast image for element spatial distribution analysis .....  
..... *Zhang Xiang-Zhi, Xu Zi-Jian, Zhen Xiang-Jun, Wang Yong, Guo Zhi, Yan Rui, Chang Rui, Zhou Ran-Ran, Tai Ren-Zhong*(4541)
- 3000 ATOMIC AND MOLECULAR PHYSICS**
- 3120 Structure and potential energy function of MgB and  $MgB_2(^1A_1)$  .....  
..... *Han Xiao-Qin, Jiang Li-Juan, Liu Yu-Fang*(4546)
- 3120A Full-relativistic multi-configuration self-consistent calculation of atomic structures and physical properties —Construction of “quasi-complete basis sets” and configuration interaction calculations .....  
..... *Qing Bo, Cheng Cheng, Gao Xiang, Zhang Xiao-Le, Li Jia-Ming*(4555)
- 3120T Multi-reference configuration interaction of the ground and low-lying excited states of LiC .....  
..... *Chen Heng-Jie, Cheng Xin-Lu, Tang Hai-Yan, Wang Quan-Wu, Su Xin-Fang*(4563)
- 3280 A broadband supercontinuum generated by helium atom exposed to combined mid-infrared laser field .....  
..... *Chen Dong, Yu Ben-Hai, Tang Qing-Bin*(4570)
- 3290 Quantitative analysis of element concentration in Al alloy by using laser-induced breakdown spectroscopy ... *Sun Dui-Xiong, Su Mao-Gen, Dong Chen-Zhong, Wang Xiang-Li, Zhang Da-Cheng, Ma Xin-Wen*(4576)
- 3310 The full vibrational spectra and dissociation energies of  $Li_2$  molecule .....  
..... *Fan Qun-Chao, Sun Wei-Guo, Li Hui-Dong, Feng Hao*(4583)
- 3365F X-ray photoelectron spectroscopy study on GaN crystal irradiated by slow highly charged ions .....  
..... *Han Lu-Hui, Zhang Chong-Hong, Zhang Li-Qing, Yang Yi-Tao, Song Yin, Sun You-Mei*(4590)
- 3450 Theoretical calculation of integral cross sections of rotational excitation for collisions in isotopes of He atom with  $Na_2$  molecule ..... *Li Wen-Feng, Linghu Rong-Feng, Cheng Xin-Lu, Yang Xiang-Dong*(4597)
- 3640 Density functional theory study of silica clusters  $(SiO_2)_n^- (n \leq 7)$  .....  
..... *Zhang Yan, Chen Xue-Feng, Qi Kai-Tian, Li Bing, Yang Chuan-Lu, Sheng Yong*(4601)
- 4000 CLASSICAL AREAS OF PHENOMENOLOGY**
- 4110H Design and experimental verification of a new type left-handed metamaterial structure .....  
..... *Sun Yong-Zhi, Ran Li-Xin, Wang Dong-Xing, Wang Wei-Guang, Chen Qiu-Lin*(4606)
- 4110H A quick novel experimental method of metamaterial electromagnetic cloaking structure at microwave frequencies .....  
..... *Wen Ru-Ming, Li Ling-Yun, Han Ke-Wu, Sun Xiao-Wei*(4611)
- 4170 Beam-wave interaction analysis of gyrotron-traveling-wave tube based on a lossy dielectric-lined waveguide .....  
..... *Du Chao-Hai, Liu Pu-Kun, Xue Qian-Zhong*(4619)
- 4180D Linear transformer driven long pulse high power generator with higher repetition rate .....  
..... *Xiang Fei, Tan Jie, Zhang Yong-Hui, Wang Gan-Ping, Luo Min, Cao Shao-Yun, Kang Qiang, Gong Sheng-Gang, Luo Guang-Yao, Li Chun-Xia, Jin Hui, Zhang Bei-Zhen*(4625)
- 4180D Propagation of the intense relativistic sheet electron beam with a quasi-rectangular cross section .....  
..... *Du Guang-Xing, Qian Bao-Liang*(4633)
- 4220 Effect of structure and size of laser spot on speckle contrast in laser scanning display .....  
..... *Chang Hong, Yang Fu-Gui, Dong Lei, Wang An-Ting, Xie Jian-Ping, Ming Hai*(4639)

(Continued)

- 7540 Simulation of magnetic end effect of amorphous wires ..... Pang Hao, Yang Yu, Wang Zan-Ji(5054)
- 7580 Magnetolectric film under interaction of microwave ..... Zheng Hong, Yang Cheng-Tao(5060)
- 7750 Preparation and piezoelectricity of fluorocarbon polymer piezoelectret films with ordered void structure  
..... Sun Zhuan-Lan, Zhang Xiao-Qing, Cao Gong-Xun, Wang Xue-Wen, Xia Zhong-Fu(5066)
- 7755 Experimental study on the distribution of trap levels in dielectric by photo-stimulated discharge .....  
..... Zhu Zhi-En, Zhang Ye-Wen, An Zhen-Lian, Zheng Fei-Hu(5072)
- 7820P Band gap characteristics of two-dimensional photonic crystals made of a triangular lattice of dielectric rods  
..... Yang Yi-Biao, Wang Shuan-Feng, Li Xiu-Jie, Wang Yun-Cai, Liang Wei(5077)
- 7830 Raman scattering study of the spin ladder compound  $Sr_{14}Cu_{24}O_{41.8}$  .....  
..... Cheng Li, Xiong Rui, Shi Jing(5084)
- 7830 Micro-structure of growth solid-liquid boundary layer of  $KTa_{1-x}Nb_xO_3$  crystal .....  
..... Zhou Wen-Ping, Wan Song-Ming, Zhang Qing-Li, Yin Shao-Tang, You Jing-Lin, Wang Yuan-Yuan(5090)
- 7830G Infrared multi-photon quantum cutting of Er-doped nanophase oxyfluoride vitroceraamics .....  
..... Chen Xiao-Bo, Liao Hong-Bo, Zhang Chun-Lin, Yu Chun-Lei, Pan Wei, Hu Li-Li, Wu Zheng-Long(5099)
- 7855 Identification of synthetic colors using derivative fluorescence spectroscopy and probabilistic neural networks  
... Chen Guo-Qing, Wu Ya-Min, Wei Bai-Lin, Liu Hui-Juan, Gao Shu-Mei, Kong Yan, Zhu Tuo(5104)
- 7865 Sub-wavelength beam lasers with surface plasmon structures ..... Song Guo-Feng,  
..... Wang Wei-Min, Cai Li-Kang, Guo Bao-Shan, Wang Qing, Xu Yun, Wei Xin, Liu Yun-Tao(5109)
- 7865 Polarization dependent phase grating based on two-dimensional structured thin films .....  
..... Li Yi-Yu, Wang Yuan-Yuan, Chen Hao, Zhu De-Xi, Hu Chuan, Qu Jia(5115)
- 7870B Defects in proton-irradiated Zn-doped GaSb studied by positron annihilation and photoluminescence  
..... Zhou Kai, Li Hui, Wang Zhu(5121)
- 8000 CROSS-DISCIPLINARY PHYSICS AND RELATED AREAS OF SCIENCE AND TECHNOLOGY**
- 8140T Laser induced rear-surface-crack damage properties of fused silica etched with HF solution .....  
..... Wang Feng-Rui,  
..... Huang Jin, Liu Hong-Jie, Zhou Xin-Da, Jiang Xiao-Dong, Wu Wei-Dong, Zheng Wan-Guo(5127)
- 8220H Structure of  $FC(O)O_2$  and the mechanism of its reaction with NO .....  
..... Zhou Xiang, Zhang Xuan, Liu Ai-Fen, Zeng Xiang-Hua(5134)
- 8630D Antisite defect of  $LiFePO_4$ : A first-principles study .....  
..... Zhang Hua, Tang Yuan-Hao, Zhou Wei-Wei, Li Pei-Juan, Shi Si-Qi(5140)
- 8630J Processes of charge transport and transfer in dye-sensitized solar cell by electrical and optical modulation  
techniques .....  
..... Liu Wei-Qing, Kou Dong-Xing, Hu Lin-Hua, Huang Yang, Jiang Nian-Quan, Dai Song-Yuan(5147)
- 8670E Molecular dynamic simulation of water molecules in carbon nanocapsule .....  
..... Chen Ming, Min Rui, Zhou Jun-Ming, Hu Hao, Lin Bo, Miao Ling, Jiang Jian-Jun(5153)
- 8670L Measurement of volatile organic compounds in the smog chamber using a Chernin multipass cell .....  
..... Yang Xi-Bin, Zhao Wei-Xiong, Tao Ling, Gao Xiao-Ming, Zhang Wei-Jun(5162)
- 8710 Cardiorespiratory phase synchronization and coupling direction after exercise .....  
..... Cao Yin-Wen, Song Shen-Yi, Xiao Jing-Hua(5168)
- 9000 GEOPHYSICS, ASTRONOMY AND ASTROPHYSICS**
- 9635P Effect of superstrong magnetic field on neutrino energy loss of the nuclide  $^{56}Fe$ ,  $^{56}Co$ ,  $^{56}Ni$ ,  $^{56}Mn$  and  $^{56}Cr$   
by electron capture in the crust of neutron stars ..... Liu Jing-Jing(5174)