首都师范大学学报(自然科学版)

Shoudu Shifan Daxue Xuebao(Ziran Kexue Ban)

2024年4月　　第45卷　第2期

目　　次

首都师范大学建校70周年系列专辑:序言 ……方复全(1)

物理系专辑:序 ……王培杰(2)

光学

太赫兹通信发展概述 ……孙东云,程雅涛,郭海琳,陈奕彤,顾子健,张朴婧,杨　哲,张存林(3)

太赫兹时域光谱技术在材料科学领域研究进展 ……

……宋晨辉,孙　爽,金　恺,王新柯,韩　鹏,孙文峰,叶佳声,冯胜飞,张　岩(14)

特殊光束诱导空气等离子体产生太赫兹波 ……郑晓冉,赵海旭,张亮亮(27)

反射式太赫兹连续波线扫描成像系统 ……王一晨,王新柯,张　岩(36)

太赫兹波段介质电磁参数测量与提取对比研究 ……张振伟,张存林(43)

贝塞尔光束透射多边形二元振幅光阑的理论研究 ……李晨怡,刘姗姗,赵琰瑞,叶佳声,张　岩(55)

理论物理

自旋轨道角动量耦合的超流费米气体 ……徐子威,杨明月,纪安春,孙　青(65)

单分量和二分量玻色-爱因斯坦凝聚体亮孤子解的李黄杨修正 ……梁庭维,王林红,孙　青,胡　洁(74)

具有非对称跃迁的一维非厄米系统研究进展……肖　涵,侯　博,曾琦波(84)

凝聚态物理

$Zn_{0.3}Fe_{2.7}O_4$纳米颗粒可控合成及磁热性能研究 ……田大明,杨天宇,王浩雄,于　杰,闫海涛,贺淑莉(95)

等离激元纳腔的构建及其在表面增强拉曼散射中的应用 ……张　萌,周怡汐,李志鹏(103)

原子与分子物理

混沌锂原子三电子不规则散射研究 ……王培杰(115)

基于光催化反应拉曼光谱信息加密纠错研究 ……张利胜,刘睿淋,王雪妍(124)

Journal of Capital Normal University

(Natural Science Edition)

Vol.45 No.2 Apr. 2024

Contents

The 70th anniversary album of Capital Normal University: preface ····· FANG Fuquan(1)

Album of Department of Physics: preface ····· WANG Peijie(2)

Optics

Overview of terahertz communication development ····· SUN Dongyun, CHENG Yatao, GUO Hailin, CHEN Yitong, GU Zijian, ZHANG Pujing, YANG Zhe, ZHANG Cunlin(3)

Progress on terahertz time-domain spectrum technology in the field of materials science ····· SONG Chenhui, SUN Shuang, JIN Kai, WANG Xinke, HAN Peng, SUN Wenfeng, YE Jiasheng, FENG Shengfei, ZHANG Yan(14)

Terahertz wave generation from air plasma induced by special laser beam ····· ZHENG Xiaoran, ZHAO Haixu, ZHANG Liangliang(27)

Reflective terahertz continuous wave linear array scanning imaging system ····· WANG Yichen, WANG Xinke, ZHANG Yan(36)

Comparative research on measurement and extraction of dielectric parameters in terahertz band ····· ZHANG Zhenwei, ZHANG Cunlin(43)

Theoretical investigation on Bessel beam transmission through a polygonal binary amplitude diaphragm ····· LI Chenyi, LIU Shanshan, ZHAO Yanrui, YE Jiasheng, ZHANG Yan(55)

Theoretical Physics

Superfluid Fermi gas with spin-orbit angular momentum coupling ····· XU Ziwei, YANG Mingyue, JI Anchun, SUN Qing(65)

Lee-Huang-Yang correction for bright soliton solutions of single and two component Bose-Einstein condensates ····· LIANG Tingwei, WANG Linhong, SUN Qing, HU Jie(74)

Research progress on one-dimensional Non-Hermitian systems with asymmetric hopping ····· XIAO Han, HOU Bo, ZENG Qibo(84)

Condensed Matter Physics

Controllable synthesis and magnetothermal properties of $Zn_{0.3}Fe_{2.7}O_4$ nanoparticles ····· TIAN Daming, YANG Tianyu, WANG Haoxiong, YU Jie, YAN Haitao, HE Shuli(95)

Construction of plasmonic nanocavity and their application in surface-enhanced Raman scattering ····· ZHANG Meng, ZHOU Yixi, LI Zhipeng(103)

Atomic and Molecular Physics

Irregular scattering of triple electrons in chaotic lithium atom ····· WANG Peijie(115)

Research on Raman spectral information encryption and error correction based on photocatalytic reaction ····· ZHANG Lisheng, LIU Ruilin, WANG Xueyan(124)