

激光与光电子学进展

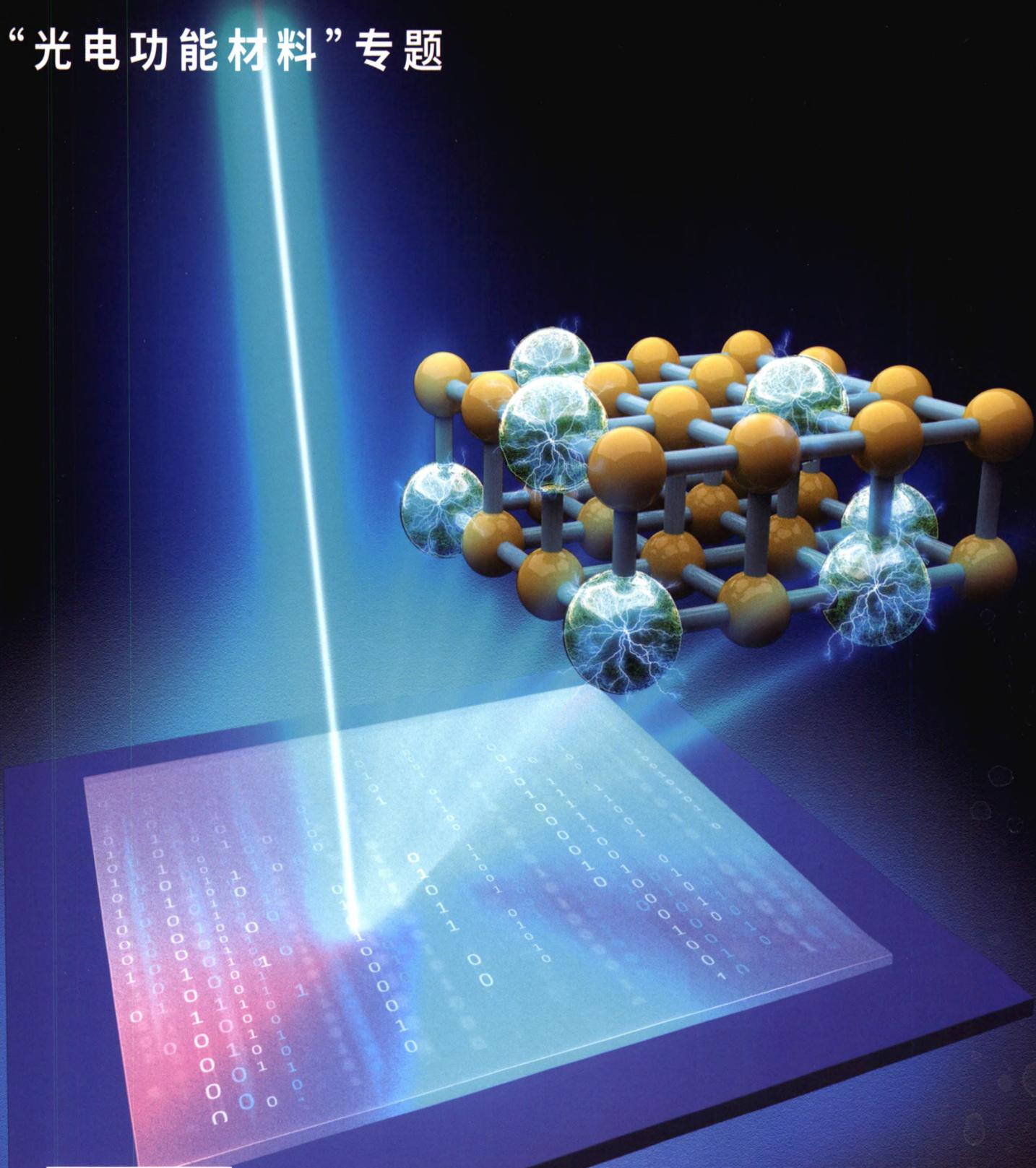
Laser & Optoelectronics Progress

[总第698期]

第 58 卷
第 15 期

2021.8(上)

“光电功能材料”专题



ISSN 1006-4125



15>

9 771006 412210
万方数据

DOI: 10.3788/LOP202158.1516001

中国科学院上海光学精密机械研究所 主办

激光与光电子学进展

第 58 卷 第 15 期 2021 年 8 月 10 日

(总第 698 期)

目 次

◆ 光电功能材料专题 ◆

专题前言	邱建荣,戴世勋,胡丽丽 1516000
面向光学信息存储应用的深陷阱长余辉发光材料(封面文章,特邀)	庄逸熙,陈敦榕,解荣军 1516001
蓬勃发展的长余辉材料(封底文章,特邀)	李杨,邱建荣 1516002
依赖于能量陷阱的多模式无机发光材料研究进展(特邀)	周新全,夏志国 1516003
Sr ₂ MgSi ₂ O ₇ :Eu ²⁺ ,Dy ³⁺ 长余辉材料的余辉机理及应用进展(特邀)	马占峰,刘硕,裴浪,等 1516004
上转换正交发光材料的纳米结构设计、光色调控及应用(特邀)	刘松彬,闫龙,黄今殊,等 1516005
热释光谱用于长余辉材料陷阱分布分析的研究进展(特邀)	张聪,杨迪,邵康,等 1516006
声光晶体和玻璃材料及其调制器的研究进展(特邀)	许增华,戴世勋,林常规,等 1516007
δ-Sc ₄ Zr ₃ O ₁₂ :Cr ³⁺ 宽带近红外荧光粉发光性能的研究(特邀)	方立民,郝振东,张亮亮,等 1516008
宽带近红外氟化物荧光粉 Cs ₂ NaAlF ₆ :Cr ³⁺ 的制备与发光特性研究(特邀)	何帆铨,吴家畅,邵佩珊,等 1516009
太阳能电池光谱转换材料的研究进展(特邀)	刘芷渝,乔旭升,樊先平 1516010
掺杂卤化物钙钛矿材料研究进展(特邀)	丁楠,王楠,刘森,等 1516011
稀土掺杂光纤辐照性能及抗辐照技术研究现状(特邀)	王博,曹驰,邢颖滨,等 1516012
日光激发无机 UVC 上转换发光材料的研究(特邀)	尹知谦,吕品书,朱铮,等 1516013
掺杂型二维材料发光性能研究进展(特邀)	刘源,黄友强,赵英杰,等 1516014
铋离子发光研究进展(特邀)	陈婷,曹人平 1516015
掺杂双相纳米晶复合光子玻璃的研究进展(特邀)	高志刚,肖静,任晶 1516016
稀土离子掺杂材料的光偏振特性研究进展(特邀)	杨丹丹,董国平,邱建荣 1516017
近红外Ⅳ-VI族半导体量子点掺杂玻璃及光纤研究进展(特邀)	许周迷,冯文举,刘小峰,等 1516018
软玻璃光纤在生物传感领域应用的研究进展(特邀)	周雪,闫欣,张学楠,等 1516019
NaY ₂ F ₈ :Eu ³⁺ /Eu ²⁺ 透明微晶玻璃的结构和光谱性能研究(特邀)	胡芳芳,龚海林,王杰,等 1516020
基于石墨烯器件的脉宽可控被动态 Q Nd:YVO ₄ 激光器	王健,戴腾飞,刘海洋,等 1516021
智能窗用二氧化钒薄膜热色性能的研究进展	张化福,周爱萍,吴志明,等 1516022
基于石墨烯的吸收效率可调超材料完美吸收器	王超素,江孝伟 1516023

高响应度光电检测器件石墨烯-MoS ₂ 垂直异质结的制备	姚杰, 缪鑫, 王帅, 等	1516024
Ga ₂ O ₃ 材料的掺杂研究进展	王丹, 王晓丹, 马海, 等	1516025
湿法刻蚀处理熔石英光学元件研究进展	李雨菡, 肖华攀, 王海容, 等	1516026
超短脉冲激光加工金属玻璃研究进展	夏照远, 钱静, 王关德, 等	1516027
层状二硫化钼热应力数值模拟	林忠涛, 龙连春, 杨洋, 等	1516028
绿色蓝晶石的宝石学特征及颜色成因分析	荆晓旭, 岳素伟, 吕欣怡	1516029



封面解读

展示了二维平面型深陷阱长余辉发光材料的激光直写信息过程。材料中包含的深陷阱能级能够将部分光能存储起来形成特定的能量亚稳态,从而在信息读出过程中释放包含多种信息元素的光子,实现多维光学信息存储和读取。

封底解读

封面以蓬勃发展的长余辉材料为突出要点。以生命之树暗指具有千年历史的长余辉材料依旧方兴未艾,与散布四周的长余辉夜明珠相呼应,表达长余辉特有的“可持续性”如今正为发光材料研究注入新的生命活力。同时,长余辉材料所面临的发展新机遇,也与“扬帆启程再出发”(帆船)的新时代精神相契合,不断吸引着对其发光现象着迷的研究人员继往开来,推陈出新。

Laser & Optoelectronics Progress

Vol. 58, No. 15 (Series No. 698) August 10, 2021

CONTENTS

Feature Issue on Optoelectronic Functional Materials

Introduction for Feature Issue	Qiu Jianrong, Dai Shixun, Hu Lili 1516000
Persistent Luminescent Materials with Deep Traps for Optical Information Storage (Cover Paper, Invited)	Zhuang Yixi, Chen Dunrong, Xie Rongjun 1516001
Persistently Luminescent Phosphors (Back Cover Paper, Invited)	Li Yang, Qiu Jianrong 1516002
Recent Advances of Energy-Trap-Dependent Multimodal Inorganic Luminescent Materials (Invited)	Zhou Xinquan, Xia Zhiguo 1516003
Research Progress on Afterglow Mechanism and Application of $\text{Sr}_2\text{MgSi}_2\text{O}_7:\text{Eu}^{2+},\text{Dy}^{3+}$ Long-Afterglow Phosphor (Invited)	Ma Zhanfeng, Liu Shuo, Pei Lang, et al. 1516004
Nanostructure Design, Multi-Color Manipulation and Application of Orthogonal Upconversion Materials (Invited)	Liu Songbin, Yan Long, Huang Jinshu, et al. 1516005
Progress in Thermoluminescence Spectroscopy for Characterization of Trap Distribution in Persistent Luminescence Materials (Invited)	Zhang Cong, Yang Di, Shao Kang, et al. 1516006
Research Progress of Acousto-Optic Crystals, Glass Materials and Modulators (Invited)	Xu Zenghua, Dai Shixun, Lin Changgui, et al. 1516007
Luminescence Properties of Broadband Near-Infrared $\delta\text{-Sc}_4\text{Zr}_3\text{O}_{12}:\text{Cr}^{3+}$ Phosphors (Invited)	Fang Limin, Hao Zhendong, Zhang Liangliang, et al. 1516008
Preparation and Luminescent Properties Research of Broadband Near-Infrared Fluoride Phosphor $\text{Cs}_2\text{NaAlF}_6:\text{Cr}^{3+}$ (Invited)	He Fanquan, Wu Jiachang, Shao Peishan, et al. 1516009
Research Progress on Spectral Conversion Materials for Solar Cells (Invited)	Liu Zhiyu, Qiao Xusheng, Fan Xianping 1516010
Research Progress on Doped Perovskite Materials (Invited)	Ding Nan, Wang Nan, Liu Sen, et al. 1516011
Research Status on Radiation Performance and Radiation Resistance Technology of Rare-Earth-Doped Fibers (Invited)	Wang Bo, Cao Chi, Xing Yingbin, et al. 1516012
Sunlight-Excited Inorganic UVC Upconversion Luminescent Materials (Invited)	Yin Zhiqian, Lü Pinshu, Zhu Zheng, et al. 1516013
Luminescence Properties of Doped Two-Dimensional Materials (Invited)	Liu Yuan, Huang Youqiang, Zhao Yingjie, et al. 1516014
Advances in Bismuth Ion Luminescence (Invited)	Chen Ting, Cao Renping 1516015
Progress in Luminescent Ions-Doped Photonic Glasses Containing Dual-Phase Nanocrystals (Invited)	Gao Zhigang, Xiao Jing, Ren Jing 1516016
Light Polarization Characteristics of Rare Earth Ions-Doped Materials: A Review (Invited)	Yang Dandan, Dong Guoping, Qiu Jianrong 1516017
Near Infrared IV-VI Semiconductor Quantum Dot-Doped Glasses and Fibers (Invited)	Xu Zhou, Feng Wenju, Liu Xiaofeng, et al. 1516018
Application of Soft-Glass Optical Fibers in Biosensing (Invited)	Zhou Xue, Yan Xin, Zhang Xuenan, et al. 1516019
Structure and Spectral Properties of $\text{NaY}_2\text{F}_7:\text{Eu}^{3+}/\text{Eu}^{2+}$ Transparent Glass-Ceramics (Invited)	Hu Fangfang, Gong Hailin, Wang Jie, et al. 1516020
Tunable Pulse Width Passively Q-Switched Nd:YVO ₄ Laser Based on Graphene Devices	Wang Jian, Dai Tengfei, Liu Haiyang, et al. 1516021
Research Progress on Thermochromic Properties of Vanadium Dioxide Thin films for Smart Windows	Zhang Huafu, Zhou Aiping, Wu Zhiming, et al. 1516022

Metamaterial Perfect Absorber with Adjustable Absorptive Efficiency Based on GrapheneWang Chaosu, Jiang Xiaowei 1516023
Preparation of Graphene-MoS ₂ Vertical Heterojunction for High-Responsivity PhotodetectorsYao Jie, Miao Xin, Wang Shuai, et al. 1516024
Progress of Doping in Ga ₂ O ₃ MaterialsWang Dan, Wang Xiaodan, Ma Hai, et al. 1516025
Review on Wet Etching Technique of Fused Silica Optical ElementsLi Yuhan, Xiao Huapan, Wang Hairong, et al. 1516026
Research Progress on Ultrashort Pulsed Laser Processing of Metallic GlassesXia Zhaoyuan, Qian Jing, Wang Guande, et al. 1516027
Numerical Simulation of the Thermal Stresses of Layered Molybdenum DisulfideLin Zhongtao, Long Lianchun, Yang Yang, et al. 1516028
Spectroscopic Characteristics and Coloring Mechanism of Green KyaniteYan Xiaoxu, Yue Suwei, Lü Xinyi 1516029



本刊电子版彩色效果请详见中国光学期刊网 www.opticsjournal.net

激光与光电子学进展

Laser & Optoelectronics Progress

2021年 | 第58卷 | 第15期

