

## 目 次

### 光学元件激光损伤·专栏主编: 郑万国

- ICF 装置靶场关键材料的辐照效应研究进展 ..... 冯青屹, 祖小涛, 刘春明, 等 091001 (30)  
强光元件逆向哈特曼在位检测装置误差敏感因素分析与验证 ..... 王姗姗, 石 峰, 乔 硕, 等 091002 (10)

### 强激光物理与技术

- 50~50 °C 超宽温运行千瓦级光纤激光器 ..... 李凤昌, 王 鹏, 王小林, 等 091013 (2)  
自研 20 μm/400 μm 保偏光纤基于振荡器种子实现 4 kW 突破 ..... 廖世彪, 罗 涛, 肖润珩, 等 091004 (3)  
基于光参量过程直接产生高重频超短脉冲序列 ..... 王文昊, 周冰洁, 章艳芳, 等 091005 (8)  
激光驱动尾波场加速电子诱导光核嬗变 ..... 王岩成, 曹宗威, 孙向阳, 等 091006 (7)  
用于探测器标定的单能 X 射线源研究 ..... 许泽方, 闫永清, 强鹏飞, 等 091007 (6)  
基于小角度 V 形腔光谱合束的半导体激光器和频 ..... 赵宇飞, 佟存柱, 魏志鹏 091008 (5)

### 大科学装置运维·专栏主编: 郑万国

- 400 mm 口径片状放大器增益性能退化研究及维护策略 ..... 刘 勇, 吴文龙, 陈文祺, 等 092001 (5)  
面向大型激光装置的智能装配调度 ..... 熊 召, 尹灵钰, 裴国庆, 等 092002 (8)

### 惯性约束聚变物理与技术

- 平响应 X 射线二极管复合滤片参数的算法优化 ..... 赵恒伟, 陶 璞, 袁 鹏, 等 092003 (7)

### 高功率微波技术

- S 波段低磁场紧凑型相对论磁控管设计 ..... 张 伟, 徐 莎, 秦 奋, 等 093001 (6)

### 粒子束及加速器技术

- 基于束流相空间拍频产生锁模自由电子激光的物理机制研究 ..... 张 波, 齐 争, 冯 超, 等 094001 (5)  
HLS-II 直线加速器能量调节及应用 ..... 倪汪彪, 于永波, 宣 科, 等 094002 (8)

### 脉冲功率技术

- 1 MV 气体绝缘 Tesla 变压器支撑绝缘子的闪络特性实验与优化设计 ..... 葛建伟, 李俊娜, 李奇胜, 等 095001 (6)  
4 MV 感应电压叠加器的电压测量 ..... 卫 兵, 郭 帆, 康军军, 等 095002 (6)

### 核科学与工程

- 绕丝交混模型对钠冷快堆组件子通道分析的影响 ..... 方闻韬, 佟立丽, 曹学武 096001 (6)  
激光与半导体材料相互作用的双电子共振吸收模型 ..... 秦可勉, 潘玉贺, 范亚南, 等 096002 (7)

### 前沿技术与交叉科学

- 智能型多功能激光防护镜与自动探测告警复合装置 ..... 罗振坤, 马 琼, 崔玉芳, 等 099001 (11)  
基于侧窗滤波与时空正则化相关滤波的红外弱小目标跟踪 ..... 钱 瑜, 王久山, 张首金, 等 099002 (7)  
嵌入式微通道散热器实验与数值研究 ..... 姜文涛, 赵 锐, 程文龙 099003 (11)  
光纤陀螺仪双层加热片设计与磁场分析 ..... 张 岩, 符鑫哲, 朱奎宝, 等 099004 (8)

CONTENTS

•Special Column on Laser Damage of Optical Elements•

- Progress of research on irradiation effects in key materials in ICF facilities ..... *Feng Qingyi, Zu Xiaotao, Liu Chunming, et al.* 091001(30)  
Error-sensitive factors analysis and verification for optical element in-situ measurement device based on phase measuring deflectometry ..... *Wang Shanshan, Shi Feng, Qiao Shuo, et al.* 091002(10)

•High Power Laser Physics and Technology•

- 50~50 °C ultra-wide temperature operation kilowatt-class fiber laser ..... *Li Fengchang, Wang Peng, Wang Xiaolin, et al.* 091013(2)  
Breakthrough of 4 kW narrow linewidth linearly polarized laser based on a fiber oscillator laser and a homemade Yb-doped fiber ..... *Liao Shibiao, Luo Tao, Xiao Runheng, et al.* 091004(3)  
Direct generation of ultrashort pulse sequence by optical parametric process ..... *Wang Wenhao, Zhou Bingjie, Zhang Yanfang, et al.* 091005(8)  
Study of photo-transmutation induced by laser wakefield accelerated electrons ..... *Wang Yancheng, Cao Zongwei, Sun Xiangyang, et al.* 091006(7)  
Single energy X-ray source for calibration of X-ray detectors ..... *Xu Zefang, Yan Yongqing, Qiang Pengfei, et al.* 091007(6)  
Sum frequency generation of semiconductor laser based on V-shaped spectral beam combining ..... *Zhao Yufei, Tong Cunzhu, Wei Zhipeng* 091008(5)

•Special Column on Operation and Maintenance of Large Scale Scientific Facility•

- Gain degeneration and maintenance project of 400 mm aperture disk amplifier ..... *Liu Yong, Wu Wenlong, Chen Wenqi, et al.* 092001(5)  
Intelligent assembly scheduling for large laser devices ..... *Xiong Zhao, Yin Lingyu, Pei Guoqing, et al.* 092002(8)

•Inertial Confinement Fusion Physics and Technology•

- Optimization algorithm for compound filter parameters of flat response X-ray diode ..... *Zhao Hengwei, Tao Tao, Yuan Peng, et al.* 092003(7)

•High Power Microwave Technology•

- Design of a compact S-band relativistic magnetron operating at low magnetic field ..... *Zhang Wei, Xu Sha, Qin Fen, et al.* 093001(6)

•Particle Beams and Accelerator Technology•

- Research on physical mechanism of mode-locked free-electron laser based on electron beam phase space beating ..... *Zhang Bo, Qi Zheng, Feng Chao, et al.* 094001(5)  
Energy adjustment and application of the HLS-II linac ..... *Ni Wangbiao, Yu Yongbo, Xuan Ke, et al.* 094002(8)

•Pulsed Power Technology•

- Experiment and optimal design of flashover characteristics of support insulators for 1 MV gas insulated Tesla transformer ..... *Ge Jianwei, Li Junna, Li Qisheng, et al.* 095001(6)  
Voltage measurement for 4 MV induction voltage adder ..... *Wei Bing, Guo Fan, Kang Junjun, et al.* 095002(6)

•Nuclear Science and Engineering•

- Influence of wire wrap mixing model on sub-channel analysis of sodium-cooled fast reactor assembly ..... *Fang Wentao, Tong Lili, Cao Xuewu* 096001(6)  
Two-electron resonance absorption model of laser-semiconductor interaction ..... *Qin Kedian, Pan Yuhe, Mao Ya'nan, et al.* 096002(7)

•Advanced Interdisciplinary Science•

- Composite device of intelligent multifunctional laser protective goggles and automatic detection and alarm ..... *Luo Zhenkun, Ma Qiong, Cui Yufang, et al.* 099001(11)  
Infrared dim small target tracking based on side window filtering and spatial-temporal regularized correlation filters ..... *Qian Kun, Wang Jiushan, Zhang Shoujin, et al.* 099002(7)  
Experimental and numerical study of embedded microchannel heat sink ..... *Jiang Wentao, Zhao Rui, Cheng Wenlong* 099003(11)  
Design and magnetic field analysis of double-layer heating plate for fiber optic gyroscope ..... *Zhang Yan, Fu Xinze, Zhu Kuibao, et al.* 099004(8)