



中国激光

Chinese Journal of Lasers

[总第506期]

第46卷 | 第2期

Vol. 46 | No. 2

2019.2



ISSN 0258-7025



9 770258 702193

万方数据

中国科学院上海光学精密机械研究所
中国光学学会 主办

中国激光

第 46 卷 第 2 期 2019 年 2 月

(总第 506 期)

目 次

· 激光器件与激光物理 ·

调制光栅 Y 分支可调谐激光器高精准波长调谐特性 郑胜亨, 杨远洪 0201001

100 Hz 重复频率脉冲中红外 HF 化学激光器 黄超, 黄珂, 易爱平, 等 0201002

基于 20/400 μm 增益光纤的 3 kW 近单模全光纤放大器及其长时工作特性 罗雪雪, 美小明, 史尘, 等 0201004

基于无芯光纤结合保偏光纤的可切换多波长光纤激光器 赵小丽, 张钰民, 宋言明, 等 0201005

· 激光制造 ·

飞秒激光等离子体光斑图像增强及亮度分析 王福斌, 刘洋, 潘兴辰, 等 0202001

基于数值仿真的 Al₂O₃ 陶瓷激光选区熔化表面微观组织形成机理研究 马瑞苓, 张凯, 韦辉亮, 等 0202002

焊前激光预处理的铝合金表面氧含量的分布及影响 佟艳群, 张昂, 黄建宇, 等 0202003

· 材料与薄膜 ·

飞秒激光作用下金膜的微观特性变化 崔云, 张晗宇, 赵元安, 等 0203001

高应变 In_x Ga_{1-x} As 薄膜的结晶质量及光学特性 穆玉彬, 唐吉龙, 张健, 等 0203002

激光表面织构化生物陶瓷涂层及其摩擦磨损性能 鲍雨梅, 王成武, 金志伟, 等 0203003

· 测量与计量 ·

高精度位移测量系统的硬件在环仿真 张文涛, 杜浩, 熊显名, 等 0204001

基于微振镜结构光投射器的机器人抓取 黄会明, 刘桂华, 段康容 0204002

基于 iGPS 的复杂曲面三维点云拼接技术 马国庆, 刘丽, 于正林, 等 0204003

基于结构光的高反物体三维形貌测量方法 杨鹏斌, 邓林嘉, 陈元, 等 0204004

三维形貌测量机器人的轨迹规划技术 刘丽, 马国庆, 高艺, 等 0204005

基于长程气体吸收池的单频纳秒脉冲激光光谱纯度测量 陈晓, 李世光, 朱小磊, 等 0204006

基于粒子图像测速的 XeF(C-A) 气体激光器增益区流场测量 朱昆鹏, 叶景峰, 王晟, 等 0204007

大口径光学元件功率谱密度的拼接干涉检测 刘昂, 何宇航, 李强, 等 0204008

光热调制裂纹闭合的激光超声实时监测 (封面文章) 尤博文, 倪辰荫, 沈中华 0204009

基于柱面透镜 Otto 结构 SPR 效应的金属薄膜厚度测量方法 李桂运, 谷利元, 胡敬佩, 等 0204010

· 光纤光学与光通信 ·

基于能量反馈的单模光纤激光腔动耦合算法 朱世伟, 盛磊, 刘永凯, 等 0206001

改进光纤光栅应变分布解调算法中优化目标函数的理论与方法 张伟, 苏超乾, 张梅, 等 0206002

集成光学声光可调谐滤波器侧瓣问题研究 高树理 0206003

基于空频域特征的白天星地信标光跟踪算法 张子玄, 贾建军, 强佳, 等 0206004

地球静止轨道激光通信系统的遮光罩优化设计 刘伟达, 罗忠宝, 李响, 等 0206005

· 生物医学光子学与激光医学 ·

基于 NSGA-II 的离体皮肤组织激光融合工艺参数的多目标优化 黄俊, 陈子博, 刘其蒙, 等 0207001

· 非线性光学 ·

非线性光子晶体中的非线性衍射高阶次谐波 马博琴, 李黄佳 0208001

椭球形粒子浓度对激光偏振传输特性的影响 于婷, 战俊彤, 马莉莉, 等 0208002

532 nm 激光抽运 CO₂ 气体的多光谱拉曼激光 李仲慧, 刘栋, 蔡向龙, 等 0208003

· 全息与信息处理 ·

不同编码方法生成圆对称艾里光束的实验研究及其特性比较 刘正楠, 耿滔, 邓攀 0209001

有效视差图像分割与重组的单步全息体视图打印方法 陈祎贝, 闫兴鹏, 苏健, 等 0209002

· 遥感与传感器 ·

基于多层深度特征融合的极化合成孔径雷达图像语义分割 胡涛, 李卫华, 秦先祥, 等 0210001

基于光子晶体光纤表面等离子体共振的温度和磁场双参量传感器 李佳欢, 裴丽, 王建帅, 等 0210002

· 光谱学 ·

西林瓶内氧气含量在线检测的基线快速校正方法 朱高峰, 朱红求, 钱灏, 等 0211001

样品温度对纳秒激光诱导铝等离子体光谱强度的影响 齐洪霞, 赵亮, 金川琳, 等 0211002

激光诱导多孔阳极氧化铝等离子体的特性 孟宁喜, 郭伟, 吴立志, 等 0211003

基于波长计实现多路激光的长稳锁定 钱源, 梁世勇, 黄垚, 等 0211004

Ar 等离子体处理对 GaAs 纳米线发光特性的影响 高美, 李浩林, 王登魁, 等 0211005

· 微纳光学 ·

双金属挡板金属-电介质-金属波导耦合方形腔的 Fano 共振传感特性 陈颖, 曹景刚, 许扬眉, 等 0213001

溶胶-凝胶法制备 TiO₂-SiO₂ 混合微球腔的激发高阶回音壁模式 柯超珍, 许灿华, 黄衍堂, 等 0213002

· 快报 ·

LD 抽运钾蒸气激光器 宁方晋, 谭荣清, 刘松阳, 等 0215001

oo

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

CONTENTS

• Laser Devices and Laser Physics •

High Precision and Accuracy Wavelength Tuning Characteristics of Modulated Grating Y-Branch Tunable Lasers	Zheng Shengheng, Yang Yuanhong 0201001
A Mid-Infrared Pulsed HF Chemical Laser with 100 Hz Repetition Rate	Huang Chao, Huang Ke, Yi Aiping, et al. 0201002
3 kW Near-Single-Mode All-Fiber Amplifier Based on 20/400 μm Gain Fiber and Its Long Time Operation Characteristics	Luo Xuexue, Xi Xiaoming, Shi Chen, et al. 0201004
Switchable Multi-Wavelength Fiber Laser Based on Non-Core Fiber Combing with Polarization Maintaining Fiber	Zhao Xiaoli, Zhang Yumin, Song Yanming, et al. 0201005

• Laser Manufacturing •

Image Enhancement and Luminance Analysis of Femtosecond Laser Induced Plasma Spot	Wang Fubin, Liu Yang, Pan Xingchen, et al. 0202001
Formation Mechanism of Surface Microstructure in Selective Laser Melting of Alumina Ceramic Based on Numerical Simulation	Ma Ruiqin, Zhang Kai, Wei Huiliang, et al. 0202002
Distribution and Influence of Oxygen Content of Laser Pretreated Aluminum Alloy Surface Before Welding	Tong Yanqun, Zhang Ang, Huang Jianyu, et al. 0202003

• Materials and Thin Films •

Microscopic Properties Changes of Au Film Under Action of Femtosecond Laser	Cui Yun, Zhang Hanyu, Zhao Yuan'an, et al. 0203001
Crystallization Quality and Optical Properties of High Strain In _x Ga _{1-x} As Film	Kang Yubin, Tang Jilong, Zhang Jian, et al. 0203002
Textured Surface on a Bioceramic Coating via a Femtosecond Laser and its Friction and Wear Properties	Bao Yumei, Wang Chengwu, Jin Zhiwei, et al. 0203003

• Measurement and Metrology •

Hardware-in-the-Loop Simulation of High Precision Displacement Measurement System	Zhang Wentao, Du Hao, Xiong Xianming, et al. 0204001
Robot Bin-Picking Based on Micro-Electro Mechanical System Structure Light Projector	Huang Huiming, Liu Guihua, Duan Kangrong 0204002
Three-Dimensional Point Cloud Splicing Technology of Complex Surfaces Based on iGPS	Ma Guoqing, Liu Li, Yu Zhenglin, et al. 0204003
Three-Dimensional Shape Measurement of Highly Reflective Objects Based on Structured Light	Yang Pengbin, Deng Linjia, Chen Yuan, et al. 0204004
Trajectory Planning Technology of Three-Dimensional Shape Measurement Robots	Liu Li, Ma Guoqing, Gao Yi, et al. 0204005
Spectral Purity Measurement of Single-Frequency Nanosecond Laser Pulse Based on Long Path Absorption Cell	Chen Xiao, Li Shiguang, Zhu Xiaolei, et al. 0204006

Flow Field Measurements in Gain Zone of XeF(C-A) Gas Laser Based on Particle Image Velocimetry	Luan Kunpeng, Ye Jingfeng, Wang Sheng, et al. 0204007
Power Spectral Density Test of Large Aperture Optical Elements by Stitching Interferometry	Liu Ang, He Yuhang, Li Qiang, et al. 0204008
Laser Ultrasonic Real-Time Monitoring of Photothermal Modulation Crack Closure (Cover Paper)	You Bowen, Ni Chenyin, Shen Zhonghua 0204009
Thickness Measurement Method of Metallic Thin Film Based on SPR Effect Generated by Cylindrical Lens with Otto Configuration	Li Guiyun, Gu Liyuan, Hu Jingpei, et al. 0204010

• Fiber Optics and Optical Communications •

- Laser Nutation Coupling Algorithm for Single Mode Fiber Based on Energy Feedback *Zhu Shiwei, Sheng Lei, Liu Yongkai, et al.* 0206001
- Theory and Method for Improving Optimization Objective Function in Demodulation Algorithm of Fiber Bragg Grating Strain Distribution *Zhang Wei, Su Chaoqian, Zhang Mei, et al.* 0206002
- Sidelobe Problems of Integrated Optical Acousto-Optic Tunable Filter *Gao Shuli* 0206003
- Daytime Satellite-to-Ground Beacon Tracking Algorithm Based on Spatial and Frequency Domain Features *Zhang Zixuan, Jia Jianjun, Qiang Jia, et al.* 0206004
- Optimized Design of Baffle for Laser Communication System on Geostationary Orbit *Liu Weida, Luo Zhongbao, Li Xiang, et al.* 0206005

• Biomedical Photonics and Laser Medicine •

- Multi-Objective Optimization for Laser Closure Process Parameters *in vitro* Skin Tissue Based on NSGA-II *Huang Jun, Chen Zibo, Liu Qimeng, et al.* 0207001

• Nonlinear Optics •

- High-Order Nonlinear Diffraction Harmonics in Nonlinear Photonic Crystals *Ma Boqin, Li Huangjia* 0208001
- Effect of Ellipsoidal Particle Concentration on Laser Polarization Transmission Characteristics *Yu Ting, Zhan Junlong, Ma Lili, et al.* 0208002
- Multispectral Raman Laser in CO₂ Gas Pumped by 532 nm Laser *Li Zhonghui, Liu Dong, Cai Xianglong, et al.* 0208003

• Holography and Information Processing •

- Generation and Performance Comparison of Circular Airy Beams by Different Encoding Methods *Liu Zhengnan, Geng Tao, Deng Pan, et al.* 0209001
- One-Step Holographic Stereogram Printing Method Based on Effective Perspective Images' Segmentation and Mosaicking Method *Chen Yibei, Yan Xingpeng, Su Jian, et al.* 0209002

• Remote Sensing and Sensor •

- Semantic Segmentation of Polarimetric Synthetic Aperture Radar Images Based on Multi-Layer Deep Feature Fusion *Hu Tao, Li Weihua, Qin Xianxiang, et al.* 0210001
- Temperature and Magnetic Field Sensor Based on Photonic Crystal Fiber and Surface Plasmon Resonance *Li Jiahuan, Pei Li, Wang Jianshuai, et al.* 0210002

• Spectroscopy •

- Fast Baseline Correction Method for Online Detection of Oxygen Content in Vials *Zhu Gaofeng, Zhu Hongqiu, Qian Hao, et al.* 0211001
- Influence of Sample Temperature on Spectral Intensity of Nanosecond Laser-Induced Aluminum Plasma *Qi Hongxia, Zhao Liang, Jin Chuanlin, et al.* 0211002
- Characteristics of Laser-Induced Plasma in Porous Anodic Aluminum Oxide *Meng Ningxi, Guo Wei, Wu Lizhi, et al.* 0211003
- Long-Term Frequency Stabilization of Multi-Lasers Based on Wavemeter *Qian Yuan, Liang Shiyong, Huang Yao, et al.* 0211004
- Effects of Ar Plasma Treatment on Photoluminescence Properties of GaAs Nanowires *Gao Mei, Li Haolin, Wang Dengkui, et al.* 0211005

• Micro and Nano Optics •

- Fano Resonance Sensing Characteristics of Metal-Dielectric-Metal Waveguide Coupling Square Cavity with Bimetallic Baffle *Chen Ying, Cao Jinggang, Xu Yangmei, et al.* 0213001
- High-Order Whispering Gallery Modes in TiO₂-SiO₂ Hybrid Microsphere Cavity Prepared with Sol-Gel Method *Ke Chaozhen, Xu Canhua, Huang Yantang, et al.* 0213002

• Letters •

- Diode Pumped Potassium Vapor Laser *Ning Fangjin, Tan Rongqing, Liu Songyang, et al.* 0215001

CIOP 2019

The 11th International Conference on Information Optics and Photonics

August 7-10, 2019 Xi'an, China

Committees

General Chairs



Shining Zhu
Nanjing University, China



Dieter Bimberg
TU Berlin, Germany & CIOMP, CAS,
China

Technical Program Chairs



Yidong Huang
Tsinghua University, China



Jianlin Zhao
Northwestern Polytechnical University,
China



Shigehisa Arai
Tokyo Institute of Technology, Japan

Subcommittees

1. Light-Matter Interactions
2. Plasmonics and Metamaterials
3. Ultrafast and Nonlinear Phenomena
4. Solid State, Fiber, and Other Laser Sources
5. Silicon Photonics
6. Microwave Photonics
7. Micro and Nanophotonics
8. Optical Materials
9. Optical Metrology
10. Infrared and Terahertz Technologies
11. Optical Imaging, Display, and Storage
12. Optical Communications and Networks
13. Optical Fiber and Waveguide Technologies
14. Biophotonics and Optofluidics
15. Optical Sensors and Systems
16. Atomic Physics, Quantum Photonics,
and Quantum Information

800+ attendees, 40+ exhibitors and 300+ technical talks