

中国激光杂志社  
CHINESE LASER PRESS

10  
2009  
2019

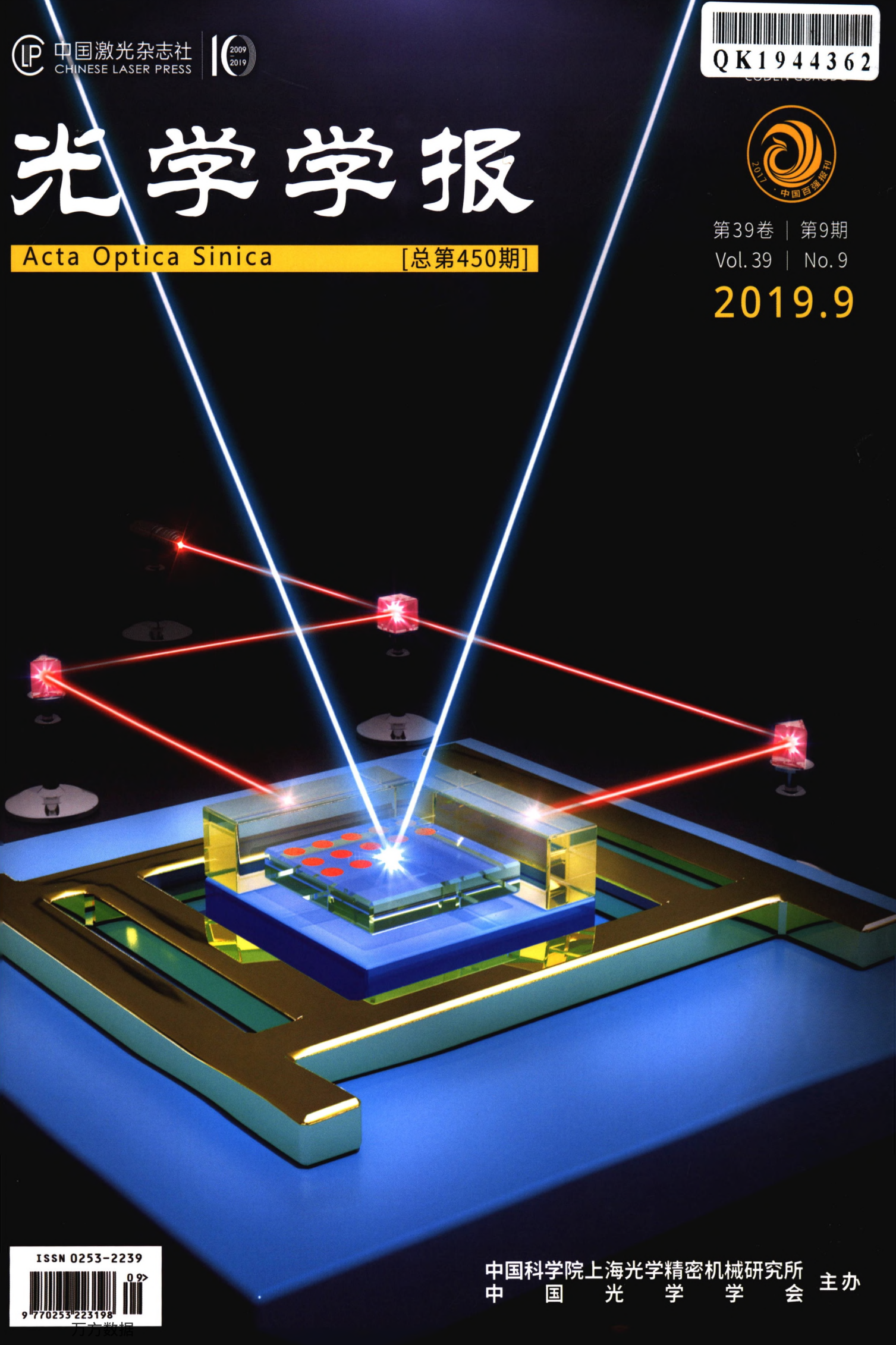
QK1944362

# 光学学报



Acta Optica Sinica [总第450期]

第39卷 | 第9期  
Vol. 39 | No. 9  
2019.9



ISSN 0253-2239

9 770253 223198

中国科学院上海光学精密机械研究所 主办  
中国光学学会

万方数据

# 光 学 学 报

第 39 卷 第 9 期 2019 年 9 月

(总第 450 期)

## 目 次

### · 大气光学与海洋光学 ·

湍流大气中无衍射涡旋光束的展宽及相位奇点的演化 ..... 葛筱璐, 岳喜福, 王本义, 等 0901001

基于双透射率水下成像模型的图像颜色校正 ..... 王国霖, 田建东, 李鹏越 0901002

### · 原子与分子物理学 ·

含有自旋轨道耦合的三组分冷原子的颤动 ..... 王昭阳, 陈园园 0902001

### · 探测器 ·

非制冷型长波红外光谱仪的辐射定标方法 ..... 吴越, 朱之贞, 方勇华, 等 0904001

### · 衍射与光栅 ·

基于超精密激光直写系统制作二维光栅 (封面文章) ..... 李民康, 向显嵩, 周常河, 等 0905001

### · 光纤光学与光通信 ·

直接探测系统中两种单边带光信号调制与恢复方法的研究 ..... 高翔, 蔡沅成, 许渤, 等 0906001

一种基于 OpenFlow 光接入网的轻量级安全身份认证加密机制 ..... 汤永利, 刘涛, 李一鸣, 等 0906002

基于时频共传的光纤链路时延测量方法 ..... 郭俊成, 卢麟, 吴传信, 等 0906003

基于光梳状谱发生器和注入锁定本地激光器的相干正交频分复用无源光网络系统 ..... 梁凌寰, 宋英雄, 林如俭, 等 0906004

基于被动补偿的点到多点微波信号光纤稳相传输 ..... 姜瑶, 邹喜华, 严相雷, 等 0906005

三种涡旋光光子晶体光纤的设计 ..... 魏薇, 张玲翔, 张志明, 等 0906006

低复杂度室内超密集可见光通信网络频谱资源分配算法 ..... 白向伟, 李青, 唐燕群 0906007

用于轴瓦温度监测的无线耦合光纤布拉格光栅传感器 ..... 何为, 张翠, 童杏林, 等 0906008

### · 傅里叶光学与信号处理 ·

Gyrator 变换域下基于超混沌相位掩模的光学水印方法 ..... 刘高佳, 姜肇国, 徐熙平, 等 0907001

### · 图像处理 ·

基于图像块分解的多曝光图像融合去鬼影算法 ..... 马夏一, 范方晴, 卢陶然, 等 0910001

### · 成像系统 ·

针对广域像移变化的数字时间延迟积分方法 ..... 陶淑苹, 张续严, 冯钦评, 等 0911001

穆勒矩阵成像椭偏仪误差源的简化分析方法 ..... 孟泽江, 李思坤, 王向朝, 等 0911002

基因测序系统中动态因素对能量集中度的影响 ..... 孙志远, 李婉玉 0911003

### · 仪器, 测量与计量 ·

基于智能检测不变像元的 FY-3A/MERSI 仪器响应衰变分析 ..... 王俊伟, 胡秀清, 何玉青, 等 0912001

复杂动态环境下精细导星仪拖尾星斑复原方法 ..... 陈怀宇, 尹达一 0912002

全视场外差长腔干涉测量技术 ..... 伍洲, 李杨, 相里斌, 等 0912003

非平行双目视觉系统水下标定与测量 ..... 解则晓, 余江妹, 迟书凯, 等 0912004

星载偏振扫描仪星上偏振定标器 ..... 杨洪春, 洪津, 邹鹏, 等 0912005

基于自发瑞利-布里渊散射的相关参数误差对气体温度准确测量的影响 ..... 吴涛, 杨传音, 商景诚, 等 0912006

· 激光器与激光光学 ·

- 1.55- $\mu\text{m}$  大功率高速直调半导体激光器阵列 ..... 王皓, 张瑞康, 陆丹, 等 0914001
- 基于光纤激光放大倍频的冷原子钟光源 ..... 王新文, 项静峰, 彭向凯, 等 0914002

· 机器视觉 ·

- 自适应特征融合和模型更新的相关滤波跟踪 ..... 常敏, 沈凯, 张学典, 等 0915001
- 基于断裂面特征点匹配的文物碎片重组方法 ..... 胡佳贝, 周蓬勃, 耿国华, 等 0915002
- 基于孪生神经网络在线判别特征的视觉跟踪算法 ..... 仇祝令, 查宇飞, 朱鹏, 等 0915003
- 单目相机姿态估计的稳健正交迭代方法 ..... 张雄锋, 刘海波, 尚洋 0915004
- 双注意力循环卷积显著性目标检测算法 ..... 谢学立, 李传祥, 杨小冈, 等 0915005
- 联合多级深度特征表示和有序加权距离融合的视频行人再识别方法 ..... 孙锐, 黄启恒, 陆伟明, 等 0915006

· 材料 ·

- 生长中断法生长 InAs/GaSb II 型超晶格材料表面形貌的研究 ..... 李承林, 房丹, 张健, 等 0916001

· 医用光学与生物技术 ·

- 不同发光二极管单色光质对三角褐指藻中岩藻黄素含量及相关基因表达的影响 ..... 徐润洁, 蔡一富, 陈文婷, 等 0917001
- 基于红细胞特征体积模型匹配的慢速血流检测 ..... 陈铭, 徐君宜, 高志山, 等 0917002

· 光计算 ·

- 一种基于大型光纤陀螺仪的世界时解算方法 ..... 王惜康, 高玉平 0920001

· 光学设计与制造 ·

- 大相对孔径、大视场、紧凑型空间光学系统设计 ..... 任志广, 李旭阳, 倪栋伟 0922001

· 遥感与传感器 ·

- 改进的热红外图像降尺度模型及应用 ..... 张文奇, 巩彩兰, 胡勇, 等 0928001
- 机载合成孔径激光雷达全孔径成像算法 ..... 尹红飞, 郭亮, 杨利超, 等 0928002
- 基于辐射状靶标的高分辨率光学卫星传感器像质评价方法研究 ..... 徐伟伟, 张黎明, 司孝龙, 等 0928003
- 基于射线坡度阈值的城市地面分割算法 ..... 李炯, 赵凯, 白睿, 等 0928004

· 光谱学 ·

- 特征变量选择和回归方法相结合的土壤有机质含量估算 ..... 李冠穗, 高小红, 肖能文, 等 0930002
- 基于高光谱和 BP 神经网络的棉花冠层叶绿素含量联合估算  
..... 依尔夏提·阿不来提, 白灯莎·买买提艾力, 买买提·沙吾提, 等 0930003
- 山茶油中油酸和亚油酸近红外光谱分析模型 ..... 郝勇, 吴文辉, 商庆园, 等 0930004
- 钻石的紫外-可见-近红外光谱与光致发光光谱温敏特性及其鉴定指示意义 ..... 严雪俊, 严俊, 方飏, 等 0930005
- 用于近红外宽带腔增强吸收光谱的小波去噪 ..... 姚丹, 郑凯元, 刘梓迪, 等 0930006
- 基于小波变换的干涉光谱信号检测与校正方法 ..... 孟鑫, 刘磊, 江升, 等 0930007
- 基于改进正弦余弦算法的光谱特征峰定位方法 ..... 于坤, 焦青亮, 刘子龙, 等 0930008

· 视觉, 颜色与视觉光学 ·

- RGB-LED 光源下光源色度对颜色恒常性的影响 ..... 马瑞青, 廖宁放 0933001

· X 射线光学 ·

- 基于条纹反射方法的 Angel 型龙虾眼 X 射线镜片面型测试 ..... 张诗颢, 黎龙辉, 孙建宁, 等 0934001



本文电子版彩色效果请详见中国光学期刊网 [www.opticsjournal.net](http://www.opticsjournal.net)

# Acta Optica Sinica

Vol.39, No.9 (Series No.450) September 2019

## CONTENTS

### Atmospheric Optics and Oceanic Optics

- Beam Spreading and Phase Singularities' Behavior of Non-Diffracting Vortex Beams Through Turbulent Atmosphere ..... *Ge Xiaolu, Yue Xifu, Wang Benyi, et al.* 0901001
- Image Color Correction Based on Double Transmission Underwater Imaging Mode ..... *Wang Guolin, Tian Jiandong, Li Pengyue* 0901002

### Atomic and Molecular Physics

- Zitterbewegung of Three-Component Cold Atoms with Spin-Orbit Coupling ..... *Wang Zhaoyang, Chen Yuanxuan* 0902001

### Detectors

- Radiation Calibration Method Using Uncooled Long-Wave Infrared Spectrometer ..... *Wu Yue, Zhu Zhizhen, Fang Yonghua, et al.* 0904001

### Diffraction and Gratings

- Two-Dimensional Grating Fabrication Based on Ultra-Precision Laser Direct Writing System (Cover Paper) ..... *Li Minkang, Xiang Xiansong, Zhou Changhe, et al.* 0905001

### Fiber Optics and Optical Communications

- Two Approaches of Single-Side Band Optical Signal Modulation and Reconstruction in Direct Detection System ..... *Gao Xiang, Cai Yuancheng, Xu Bo, et al.* 0906001
- Lightweight Secure Identity Authentication Encryption Mechanism Based on OpenFlow Optical Access Network ..... *Tang Yongli, Liu Tao, Li Yiming, et al.* 0906002
- Time Delay Measurement of Optical Fiber Link Using Time-Frequency Joint Transfer ..... *Guo Juncheng, Lu Lin, Wu Chuanxin, et al.* 0906003
- Demonstration of Coherent Orthogonal Frequency Division Multiplexing Passive Optical Network System Based on Optical Frequency Comb and Injection Locking Local Laser ..... *Liang linghuan, Song Yingxiang, Lin Rujian, et al.* 0906004
- Point-to-Multipoint Phase-Stabilized Microwave Signal Transmission in Optical Fiber Links Using Passive Phase Compensation ..... *Jiang Yao, Zou Xihua, Yan Xianglei, et al.* 0906005
- Design of Three Vortex Photonic Crystal Fibers ..... *Wei Wei, Zhang Lingxiang, Zhang Zhiming, et al.* 0906006
- Low-Complexity Spectrum Resource Allocation Algorithm for Indoor Ultra-Dense Visible Light Communication Networks ..... *Bai Xiangwei, Li Qing, Tang Yanqun* 0906007
- Wirelessly Coupled Fiber-Bragg-Grating Sensor for Bushing-Temperature Monitoring ... *He Wei, Zhang Cui, Tong Xinglin, et al.* 0906008

### Fourier Optics and Signal Processing

- Optical Watermarking Method Based on Hyper-Chaotic Phase Mask in Gyrator Transform Domain ..... *Liu Yujia, Jiang Zhaoguo, Xu Xiping, et al.* 0907001

### Image Processing

- Multi-Exposure Image Fusion De-Ghosting Algorithm Based on Image Block Decomposition ..... *Ma Xiayi, Fan Fangqing, Lu Taoran, et al.* 0910001

### Imaging Systems

- Digital Time Delay and Integration Method for Wide-Range Image Motion Variation ..... *Tao Shuping, Zhang Xuyan, Feng Qinqing, et al.* 0911001
- Simplified Analytical Method for Error Sources in Mueller Matrix Imaging Polarimeter ..... *Meng Zejiang, Li Sikun, Wang Xiangzhao, et al.* 0911002
- Effects of Dynamic Factors on Ensquared Energy in Gene Sequencing System ..... *Sun Zhiyuan, Li Wanyu* 0911003

### Instrumentation, Measurement and Metrology

- Response Degradation Analysis of Fengyun-3A Medium-Resolution Spectral Imager Based on Intelligent Detection of Invariant Pixels ..... *Wang Junwei, Hu Xiuqing, He Yuqing, et al.* 0912001
- Restoration of Smeared Star Spot for Fine Guidance Sensor under Complex Dynamic Conditions ..... *Chen Huaiyu, Yin Dayi* 0912002
- Full-Field Heterodyne Long-Cavity Interferometry ..... *Wu Zhou, Li Yang, Xiangli Bin, et al.* 0912003
- Underwater Calibration and Measurement Based on Non-Parallel Stereovision ..... *Xie Zexiao, Yu Jiangshu, Chi Shukai, et al.* 0912004
- Onboard Polarization Calibrators of Spaceborne Particulate Observing Scanning Polarimeter ..... *Yang Hongchun, Hong Jin, Zou Peng, et al.* 0912005
- Influences of Correlation Parameter Errors on Accurate Measurement of Gas Temperature Based on Spontaneous Rayleigh-Brillouin Scattering ..... *Wu Tao, Yang Chuanyin, Shang Jingcheng, et al.* 0912006

## Lasers and Laser Optics

- 1.55-  $\mu\text{m}$  High-Power High-Speed Directly Modulated Semiconductor Laser Array ..... Wang Hao, Zhang Ruikang, Lu dan, et al. 0914001  
Light Source of Rubidium Cold Atomic Clock Based on Fiber Laser Amplification and Frequency Doubling  
..... Wang Xinwen, Xiang Jingfeng, Peng Xiangkai, et al. 0914002

## Machine Vision

- Correlation Filter Tracking Based on Adaptive Feature Fusion and Model Updating  
..... Chang Min, Shen Kai, Zhang Xuedian, et al. 0915001  
Reassembly Method of Cultural Relics Based on Feature Point Matching of Fracture Surface  
..... Hu Jiabei, Zhou Pengbo, Geng Guohua, et al. 0915002  
Visual Tracking Algorithm Based on Online Feature Discrimination with Siamese Network  
..... Qiu Zhuling, Zha Yufei, Zhu Peng, et al. 0915003  
Robust Orthogonal Iteration Algorithm for Single Camera Pose Estimation ..... Zhang Xiongfeng, Liu Haibo, Shang Yang 0915004  
Salient Object Detection Algorithm Based on Dual-Attention Recurrent Convolution  
..... Xie Xueli, Li Chuanxiang, Yang Xiaogang, et al. 0915005  
Video-Based Person Re-Identification via Combined Multi-Level Deep Feature Representation and Ordered Weighted Distance Fusion  
..... Sun Rui, Huang Qiheng, Lu Weiming, et al. 0915006

## Materials

- Surface Morphologies of InAs/GaSb Type II Superlattice Materials Obtained via Growth Interruption Method  
..... Li Chenglin, Fang Dan, Zhang Jian, et al. 0916001

## Medical Optics and Biotechnology

- Effects of LED Monochromatic Light Quality of Different Colors on Fucoxanthin Content and Expression Levels of Related Genes in  
Phaeodactylum Tricornutum ..... Xu Runjie, Gong Yifu, Cheng Wenting, et al. 0917001  
Slow Blood Flow Detection Based on Red Blood Cell Characteristic Volume Model Matching  
..... Chen Ming, Xu Junyi, Gao Zhishan, et al. 0917002

## Optics in Computing

- Universal Time Calculation Method Based on Large-Scale Fiber Optic Gyroscopes ..... Wang Xikang, Gao Yuping 0920001

## Optical Design and Fabrication

- Compact Space Optical System Design with Large Relative Aperture and Field of View ... Ren Zhiguang, Li Xuyang, Ni Dongwei 0922001

## Remote Sensing and Sensors

- Improved Thermal Infrared Image Downscaling Model and Its Application ..... Zhang Wenqi, Gong Cailan, Hu Yong, et al. 0928001  
Full Aperture Imaging Algorithm of Airborne Synthetic Aperture Ladar ..... Yin Hongfei, Guo Liang, Yang Lichao, et al. 0928002  
Image-Quality Evaluation of High-Spatial-Resolution Satellite Optical Sensor Based on Radial Target  
..... Xu Weiwei, Zhang Liming, Si Xiaolong, et al. 0928003  
Urban Ground Segmentation Algorithm Based on Ray Slope Threshold ..... Li Jiong, Zhao Kai, Bai Rui, et al. 0928004

## Spectroscopy

- Estimation of Soil Organic Matter Content Based on Characteristic Variable Selection and Regression Methods  
..... Li Guanwen, Gao Xiaohong, Xiao Nengwen, et al. 0930002  
Combined Estimation of Chlorophyll Content in Cotton Canopy Based on Hyperspectral Parameters and Back Propagation  
Neural Network ..... Ershat Ablet, Baidengsha Maimaitiaili, Mamat Sawut, et al. 0930003  
Analysis Model of Oleic and Linoleic Acids in Camellia Oil via Near-Infrared Spectroscopy  
..... Hao Yong, Wu Wenhui, Shang Qingyuan, et al. 0930004  
Temperature Sensitivity of UV-Visible-Near Infrared and Photoluminescence Spectra of Diamond and Its Significance for Identification  
..... Yan Xuejun, Yan Jun, Fang Biao, et al. 0930005  
Wavelet Denoising in Near-Infrared Broadband Cavity-Enhanced Absorption Spectroscopy  
..... Yao Dan, Zheng Kaiyuan, Liu Zidi, et al. 0930006  
Detection and Revision of Interference Spectral Signals Based on Wavelet Transforms ..... Meng Xin, Liu Lei, Jiang Sheng, et al. 0930007  
Positioning of Characteristic Spectral Peaks Based on Improved Sine Cosine Algorithm  
..... Yu Kun, Jiao Qingliang, Liu Zilong, et al. 0930008

## Vision, Color, and Visual Optics

- Influence of Illuminant Chromaticity on Color Constancy Under RGB-LED Light Source ..... Ma Ruiqing, Liao Ningfang 0933001

## X-Ray Optics

- Surface Measurement of Angel Lobster Eye X-Ray Lens Based on Fringe Reflection  
..... Zhang Shikun, Li Longhui, Sun Jianning, et al. 0934001

第十六届“中国光谷”国际光电子博览会  
暨论坛 (OVC EXPO 2019)



PHOTOELECTRONICS

AND **FUTURE**  
TODAY

激光器与光智能制造

光学与精密光学

5G

光通信与5G通信

芯片与光电显示

2019年11月13-15日  
武汉·中国光谷科技会展中心  
[www.ovcexpo.com.cn](http://www.ovcexpo.com.cn)