



中国光学工程学会会刊



2276
1/TN

第51卷 | 第12期
Vol.51 | No.12

2022.12

红外与激光工程

INFRARED AND LASER ENGINEERING



图片来源：势垒型InAs/InAsSb II类超晶格红外探测器研究进展/柳渊



刊庆五十周年



天津津航技术物理研究所
《红外与激光工程》编辑部

目次

◆ 专家报告—刊庆 50 周年 ◆

一维激光多普勒测速仪/单轴旋转惯导组合车载高程测量方法 (特邀)	高春峰, 魏 国, 王 琦, 等	20220704
航空光学成像气动光学传输效应计算研究综述 (特邀)	贾 平, 陈 健, 田大鹏	20220713
利用模糊算法实现光学谐振腔锁定优化 (特邀)	陈一路, 冯艳妮, 闫智辉, 等	20220781
势垒型 InAs/InAsSb II 类超晶格红外探测器研究进展 (特邀)	张春芳, 柳 渊, 巩明亮, 等	20220667

◆ 红外技术及应用 ◆

高工作温度 p-on-n 中波碲镉汞红外焦平面器件研究	杨超伟, 赵 鹏, 黄 伟, 等	20220150
低温光学用杜瓦柔性外壳结构热力特性研究	陈俊林, 王小坤, 曾智江, 等	20220180
红外通道式野外辐射计的光机设计及性能测试	张允祥, 李 新, 黄 冬, 等	20220246
噪声等效光谱辐亮度定标系统的性能测评	黄思佳, 袁银麟, 翟文超, 等	20220509
多功能红外焦平面读出电路设计	郑丽霞, 刘高龙, 吴 金, 等	20220139
基于两相流体的超大面源黑体控温技术	杨昌鹏, 徐 侃, 薛 亮, 等	20220195

◆ 激光器与激光光学 ◆

340 GHz 固定调谐分谐波混频器	杨大宝, 张立森, 徐 鹏, 等	20220168
1 532 nm 全光纤 Er/Yb 共掺杂激光器	杨 帆, 孟晓彤, 李 毅, 等	20220251
色散管理光纤锁模激光器在近零色散域的非线性优化	郭 婕, 闫东钰, 毕根毓, 等	20220226
不同水辅助方法对高温合金飞秒激光逐层逐圈切孔质量的影响	任乃飞, 杨华宇, 夏凯波	20220143
面向 FMCW 激光雷达的修正 Rife 算法设计与硬件实现	叶 茂, 刘恒泉, 赵毅强, 等	20220222
流动卫星激光测距系统的距离选通实现方法	朱建春, 李 欣, 朱 威	20220200
以干扰光谱做内部标准的乙醇激光遥测技术	刘 鑫, 杜振辉, 王晓雨, 等	20220275
航空铝合金表面涂层无损激光清洗研究	王 凯, 李多生, 叶 寅, 等	20210936

◆ 光电测量 ◆

采用单位激励与逆向复算的 2 m 平面镜检测技术	王鑫蕊, 杨永兴, 李启统, 等	20220154
线扫描视觉检测系统机械—成像综合误差建模	陈宇轩, 仇中军, 汤俊杰	20220282
转轴径向运动误差干涉测量的信号处理方法	丁要文, 李家琨, 马 栋, 等	20220205
面向狭窄场景的鲁棒多视角配准方法	刘 飞, 黄瀚霖, 杨 恬, 等	20220114
复杂衬底下的涂层厚度定量检测方法研究	朱 强, 周维虎, 陈晓梅, 等	20220156
光学元件亚表面缺陷表征与检测技术研究现状分析 (特邀)	李凌众, 王孝坤, 戚二辉, 等	20220572
温度和浊度对罗丹明 B 示踪检测的影响及校正	郑雪飞, 李 春, 范晓彦, 等	20220243
大口径长焦距光学检测系统强制对流方法	张 俊, 宫雪非	20220204
近空间高速流场环境小目标探测分析与试验	郭惠楠, 马迎军, 王 华, 等	20220218

◆ 光通信与光传感 ◆

矢量涡旋光束经光阑-透镜系统的 OAM 与偏振特性 闫丽凝, 吕 宏, 贺 蕊, 等 20220250

遥感卫星结构在轨热应变光纤光栅监测方法 王浩然, 董明利, 孙广开, 等 20220202

◆ 太赫兹技术 ◆

温度诱导 CL-20 相变的太赫兹光谱特性 何向阳, 张 祺, 王民昌, 等 20220137

液氮制冷的 AlGaIn/GaN HEMT 太赫兹探测器阵列特性研究 吴 昊, 朱一帆, 丁青峰, 等 20220225

◆ 材料与薄膜 ◆

玻璃平面波导的热键合制备与界面扩散研究 张春瑞, 李顺光, 胡丽丽, 等 20220239

质子注入对 GaAs 基器件隔离研究 宗梦雅, 代京京, 李 尉, 等 20220141

石英管增强拉曼光纤探头粉末样品探测 司赶上, 刘家祥, 李振钢, 等 20220187

◆ 图像处理 ◆

基于多目标图像清晰度评价的 LAMOST 光谱仪离焦诊断方法 张晓杰, 魏 炜, 侯永辉, 等 20220238

基于边界约束图像融合的光学字符识别算法研究 张 驯, 赵金雄, 白万荣, 等 20220102

红外与可见光图像深度学习融合方法综述 李 霖, 王红梅, 李辰凯 20220125

基于深度学习的轻量化红外弱小车辆目标检测算法研究 蔡仁昊, 程 宁, 彭志勇, 等 20220253

泄漏蒸汽红外温度场静态动态锤尾特性表征与辨识 吴 涛, 熊灿成, 李 聪, 等 20220179

基于二维模态分解与斑块对比度相结合的红外小目标检测算法 徐丹旸, 魏宏光, 金秋春, 等 20220148

基于汇聚级联卷积神经网络的旋转人脸检测方法 齐 悦, 董云云, 王溢琴 20220176

深度学习驱动的智能电网运行图像数据压缩技术 夏 信, 何传亮, 吕英杰, 等 20220097



编 辑: 付 宁 吴 迪	宣 传 部: 刘兴旺 022-58168885
翟远征 王红琨	广 告 部: 刘燕荣 022-58168884
刘燕荣 许文颖	发 行 部: 吴 迪 022-58168520
刘兴旺	

Contents

❖ Invited paper ❖

Height measurement method based on one-dimensional laser Doppler velocimeter and integrated navigation system of single-axis rotation inertial navigation system (<i>invited</i>)	Gao Chunfeng, Wei Guo, Wang Qi, et al. 20220704
Overview of computational studies of aerodynamic optical transmission effects in aerial optical imaging (<i>invited</i>)	Jia Ping, Chen Jian, Tian Dapeng 20220713
Optimizing optical resonant cavity locking using fuzzy algorithm (<i>invited</i>)	Chen Yilu, Feng Yanni, Yan Zhihui, et al. 20220781
Research progress of barrier InAs/InAsSb type-II superlattice infrared detectors (<i>invited</i>)	Zhang Chunfang, Liu Yuan, Gong Mingliang, et al. 20220667

❖ Infrared technology and application ❖

Research on high operating temperature p-on-n medium wave mercury cadmium telluride infrared focal plane device	Yang Chaowei, Zhao Peng, Huang Wei, et al. 20220150
Study on thermal characteristics of Dewar flexible shell structure for cryogenic optics	Chen Junlin, Wang Xiaokun, Zeng Zhijiang, et al. 20220180
Opto-mechanical design and performance test of infrared channel field radiometer	Zhang Yunxiang, Li Xin, Huang Dong, et al. 20220246
Performance evaluation of noise equivalent spectral radiance calibration system	Huang Sijia, Yuan Yinlin, Zhai Wenchao, et al. 20220509
Design of multifunctional infrared FPA ROIC	Zheng Lixia, Liu Gaolong, Wu Jin, et al. 20220139
Temperature control technology for extra large surface blackbody based on two-phase fluid	Yang Changpeng, Xu Kan, Xue Liang, et al. 20220195

❖ Lasers & Laser optics ❖

A fixed-tuned 340 GHz sub-harmonic mixer	Yang Dabao, Zhang Lisen, Xu Peng, et al. 20220168
1 532 nm all-fiber Er/Yb co-doped laser	Yang Fan, Meng Xiaotong, Li Yi, et al. 20220251
Nonlinearity optimization of dispersion-managed mode-locked Yb-doped fiber lasers with near-zero net cavity dispersion	Guo Jie, Yan Dongyu, Bi Genyu, et al. 20220226
Influence of different water-assisted methods on femtosecond laser layered-ring trepanning in superalloy	Ren Naifei, Yang Huayu, Xia Kaibo 20220143
Design and hardware implementation of modified Rife algorithm for FMCW LiDAR	Ye Mao, Liu Hengquan, Zhao Yiqiang, et al. 20220222
Implementation method of range gating for mobile satellite laser ranging system	Zhu Jianchun, Li Xin, Zhu Wei 20220200
Stand-off detection of ethanol by laser absorption spectrometry with interference-based internal standard	Liu Xin, Du Zhenhui, Wang Xiaoyu, et al. 20220275
Study on nondestructive laser cleaning of aviation aluminum alloy surface coating	Wang Kai, Li Duosheng, Ye Yin, et al. 20210936

❖ Photoelectric measurement ❖

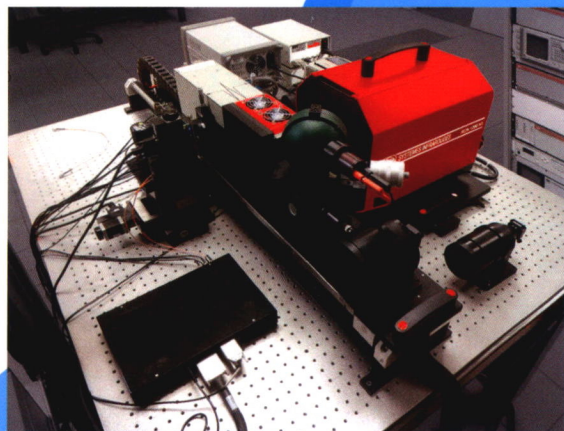
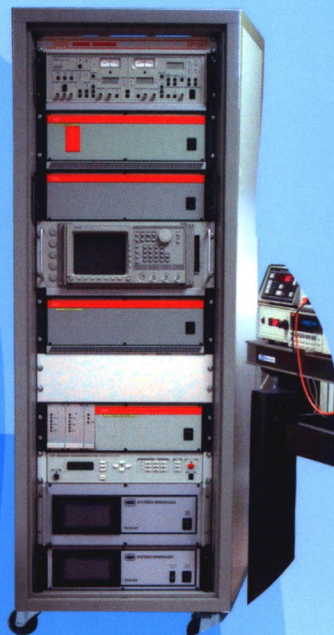
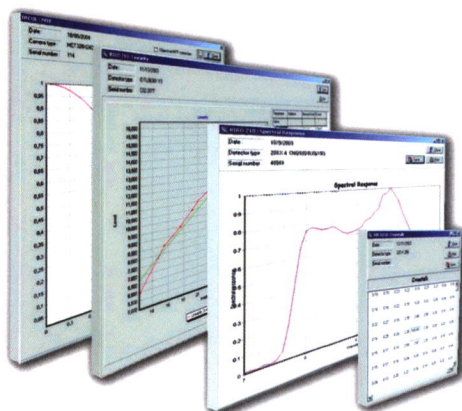
2 m plane mirror measurement technology using unit excitation and reverse calculation	Wang Xinrui, Yang Yongxing, Li Qitong, et al. 20220154
Mechanical-imaging comprehensive error modeling in line scan vision detection systems	Chen Yuxuan, Qiu Zhongjun, Tang Junjie 20220282
Signal processing method for measuring the radial motion error of rotary axis by interferometry	Ding Yaowen, Li Jiakun, Ma Dong, et al. 20220205

Robust multi-view registration method for narrow scenes	Liu Fei, Huang Hanlin, Yang Tian, et al. 20220114
Research on quantitative detection method of coating thickness on complex substrates	
.....	Zhu Qiang, Zhou Weihu, Chen Xiaomei, et al. 20220156
Research status analysis of subsurface damage characterization and measurement technology of optical components (<i>invited</i>)	
.....	Li Lingzhong, Wang Xiaokun, Qi Erhui, et al. 20220572
Influence of temperature and turbidity on Rhodamine B tracer detection and correction	
.....	Zheng Xuefei, Li Chun, Fan Xiaoyan, et al. 20220243
Forced convection method for optical testing system with large aperture and long focal length ...	Zhang Jun, Gong Xuefei 20220204
Analysis and experiment of small target detection in high speed flow field of near space	
.....	Guo Huinan, Ma Yingjun, Wang Hua, et al. 20220218
❖ Optical communication and sensing ❖	
Orbital angular momentum and polarization characteristics of vector vortex beam passing through aperture-lens system	
.....	Yan Lining, Lv Hong, He Rui, et al. 20220250
Remote sensing satellite structure in-orbit thermal strain Bragg fiber grating monitoring method	
.....	Wang Haoran, Dong Mingli, Sun Guangkai, et al. 20220202
❖ Terahertz ❖	
Terahertz spectral properties of temperature induced phase transition of CL-20	
.....	He Xiangyang, Zhang Qi, Wang Minchang, et al. 20220137
Research on the characteristics of AlGaIn/GaN HEMT terahertz detector array cooled by liquid nitrogen	
.....	Wu Hao, Zhu Yifan, Ding Qingfeng, et al. 20220225
❖ Materials & Thin films ❖	
Thermal bonding preparation and interfacial diffusion research of glass planar waveguides	
.....	Zhang Chunrui, Li Shunguang, Hu Lili, et al. 20220239
Study on proton implantation isolation of GaAs-based devices	Zong Mengya, Dai Jingjing, Li Wei, et al. 20220141
Quartz tube enhanced Raman fiber probe for powder detection	Si Ganshang, Liu Jiaxiang, Li Zhengang, et al. 20220187
❖ Image processing ❖	
Defocus diagnosis method of LAMOST spectrograph based on multi-object image definition evaluation	
.....	Zhang Xiaojie, Wei Wei, Hou Yonghui, et al. 20220238
Research on optical character recognition algorithm based on boundary constrained image fusion	
.....	Zhang Xun, Zhao Jinxiong, Bai Wanrong, et al. 20220102
A review of deep learning fusion methods for infrared and visible images	Li Lin, Wang Hongmei, Li Chenkai 20220125
Lightweight infrared dim vehicle target detection algorithm based on deep learning	
.....	Cai Renhao, Cheng Ning, Peng Zhiyong, et al. 20220253
Characterization and identification of static and dynamic hammer tail characteristics in infrared temperature field of leaking steam ...	
.....	Wu Tao, Xiong Cancheng, Li Cong, et al. 20220179
Infrared small target detection algorithm based on two-dimensional modal decomposition combined with patch contrast	
.....	Xu Danyang, Wei Hongguang, Jin Qiuchun, et al. 20220148
Rotating face detection based on convergent cascaded convolutional neural network	
.....	Qi Yue, Dong Yunyun, Wang Yiqin 20220176
Image data compression technology of smart grid operation based on deep learning	
.....	Xia Xin, He Chuanliang, Lv Yingjie, et al. 20220097

BIRD 210 焦平面探测器测试系统

主要测试功能:

- ◇ 非均匀性校正
- ◇ 盲元检测
- ◇ RMS噪声
- ◇ 固定图案噪声
- ◇ 响应率
- ◇ 探测率
- ◇ NETD
- ◇ 动态范围/线性度
- ◇ 相对光谱响应/光谱因子
- ◇ 串音/敏感面积
- ◇ MTF



★ 全参数测试算法符合国家标准GB/T 17444-2013 《红外焦平面阵列参数测试方法》

HGH Systèmes Infrarouges

10 Rue Maryse Bastié
91430 IGNY - FRANCE
Tel: +33 1 69 35 47 70
Fax: +33 1 69 35 47 80



HGH官方微信公众号
法国HGH红外系统

法国HGH红外系统股份公司北京代表处
北京东城区东直门南大街14号
北京保利大厦办公楼974室 (100027)
电话: 010 - 6551 5319
传真: 010 - 6551 5318

ISSN 1007-2276



9 771007 227226
万方数据

刊号 ISSN 1007-2276
CN 12-1261/TN

邮发代号 国内 6-133
国外 BM1766

国内定价 200.00元