

中文核心期刊  
CSCD核心期刊  
中国科技核心期刊  
RCCSE中国核心学术期刊

ISSN 2096-2304  
CN 50-1213/TJ

# 兵器装备工程学报

## Journal of Ordnance Equipment Engineering



ISSN 2096-2304



9 772096 230234

2023

4

第44卷总第297期





## 目次

## 装备理论与装备技术

- 大口径机枪枪管内膛损伤的试验研究 沈超,周克栋,陆野,李峻松(1)
- 面向高速空中目标的观测设备跟踪能力需求分析 许俊飞,吴玲,张朱峰,卢发兴(9)
- 典型破片撞击起爆屏蔽B炸药阈值研究 仝远,李德贵,聂源,王洪波,冯高鹏,李勇,尹进南(16)
- 钨合金破片对聚能装药破甲深度的影响机理 寇鹏飞,陈昕,雷婧宇,梁争峰,唐成,薛标(22)
- 聚能切割分离铝平板的仿真与试验研究 王威,赵铮(28)
- 弧形尾翼对弹箭气动特性影响研究 张超,杨文凤,孙鑫,王学德(33)
- 模拟大型气囊火药充气试验技术研究 王锐,谢武俊,洪涛(39)
- 基于混合现实的自行火炮维修指导系统 朱金达,赵永衡(45)

## 综述

- 无人水下航行器智能避碰系统技术研究综述 王亚波,张可,赵恩娇(53)
- 四旋翼在移动平台视觉导引自主降落研究综述 袁泽慧,陈国栋,李世中(60)

## 基础理论与应用研究

- 基于坐标变换的强间断问题伪弧长算法 陈泽平,王晨涛,李坤,马天宝(68)
- 基于均匀设计法的燃烧型催泪弹主装药配方设计 翟浩龙,崔晓萍,曹永峰(77)
- 基于行踪标识量的跨监控探头轨迹预测方法 袁首,乔勇军,王丽媛,陈青华(87)
- 机器学习在航天结构载荷逆向识别中的应用研究 郭晨宇,蒋亮亮,张希,杨帆,阳志光(96)
- 不确定条件下基于烟花算法的无人机任务分配 余稼洋,郭建胜,张晓丰,解涛,姚赛(104)
- 基于多场耦合仿真的四轨电磁发射器性能分析 杜翔宇,刘少伟,关娇(112)
- 三维变分数值气象预报在弹道解算中应用研究 景银华,李岩,陈霖(121)
- 虚拟同步机控制逆变器与柴油发电机组并联运行控制策略 赵友诚,朱长青,刘金宁,安树,洪欣雨(127)
- 液压机械装置压力循环数值仿真与试验研究 徐瑞童,朱赞,盛峰(133)

## 机械制造与检测技术

- 基于自适应 Fourier 分解-同步提取变换的机械故障诊断方法 陈子慧,李志农,谷士鹏,程娟(139)
- 基于 SDT 模型和蒙特卡洛法的枪械抛壳机构公差分析 位跃东,方峻(146)
- 基于刚度匹配的电磁轨道发射器减振优化 任师达,冯刚,刘少伟,胡静,李腾达(155)
- 基于深度玻尔兹曼机的工业机器人齿轮箱故障诊断 喻其炳,孔丽杰,白云,喻恺驰(163)
- 基于 PSO-SES-BPNN 算法的液压系统故障诊断模型 战欣,刘卓娅(172)
- 离焦量对 SLM 成形 GNP<sub>s</sub>/AlSi10Mg 复合材料性能的影响 孙迎建,刘禹,刚建华,石岩,周利杰(179)

## 化学工程与材料科学

- PBX-9404 炸药临界起爆特性数值模拟 栗丁丁,何中其(186)
- 基于物质点法 Ti/Al<sub>3</sub>Ti 层状复合材料抗斜侵彻性能研究 谢桂兰,侯昆,龚曙光,宋慕清,肖芳昱,左立来(194)
- Y(NO<sub>3</sub>)<sub>3</sub> 掺杂对 AZ91D MAO 涂层微观结构和耐磨性的影响 张红涛,王铁成,张云龙,周翥,张海峰,韩玉坤(200)
- 热处理对铜/钢爆炸复合材料的影响 朱磊,刘林杰,王虎年(206)

## 信息科学与控制工程

- 一种信道自适应的辐射源无监督训练与识别方法 王聪,但波,张财生(211)
- 基于改进径向基网络的电动舵机滑模控制 李冬辉,王立献,周满,江华侨,曹晓鹏(217)
- 基于 RBF 神经网络自适应滑模的机器鱼运动控制 王治平,李宗刚,陈引娟,杜亚江(224)
- 小型无人机遥控器信号跳频参数估计方法 徐亚军,唐文波,鲁合德,司成可(233)
- 基于 CenterNet 的半监督起落架自动标注 方伟,汤森,闫文君,张婷婷(239)
- 基于 ACO-LEVY 的小型无人直升机频域响应辨识方法 刘鑫瑜,周健,卢健,王耿(245)
- 基于凸包计算和小波变换的显著目标检测算法 谭永前,曾凡菊(252)
- 航空滤光片阵列多光谱图像条带预处理算法 李铜哨,孙文邦,黄心禹,章正宜,白新伟(262)
- 基于改进的 YOLOv3-SPP 算法目标检测研究 洪毕辉,李文彬,朱炜,王晓鸣,张克斌(268)
- 基于改进视觉惯性里程计的无人机系统设计 王瑞,王茂森,戴劲松,管红根(275)
- 考虑多因素影响的无人机碰撞风险评估 童亮,甘旭升,张宏宏,金剑勇(282)
- 注意力机制和 CNN 结合的雷达辐射源个体识别 杨海宇,郭文普,康凯,何婧媛,边强(290)

## CONTENTS

Experimental research on bore damage of large caliber machine gun barrels .....	SHEN Chao, ZHOU Kedong, LU Ye, et al(1)
Requirement analysis of the tracking capability of observation equipment for high-speed aerial targets .....	XU Junfei, WU Ling, ZHANG Zhufeng, et al(9)
Velocity threshold of shock initiation of shielded composition B impacted by typical fragments .....	TONG Yuan, LI Degui, NIE Yuan, et al(16)
Effect mechanism of tungsten alloy fragments on penetration depth of shaped charge .....	KOU Pengfei, CHEN Xin, LEI Jingyu, et al(22)
Numerical simulation and experimental research of shaped energy cutting and separating aluminum plates .....	WANG Wei, ZHAO Zheng(28)
Research on the influence of a curved tail on aerodynamic characteristics of a projectile .....	ZHANG Chao, YANG Wenfeng, SUN Xin, et al(33)
Research on the simulation of large airbag gunpowder inflation tests .....	WANG Rui, XIE Wujun, HONG Tao(39)
Mixed reality-based self-propelled artillery repair guidance system .....	ZHU Jinda, ZHAO Yongheng(45)
Overview of intelligent collision avoidance system technology for unmanned underwater vehicles .....	WANG Yabo, ZHANG Ke, ZHAO Enjiao(53)
Review on quadrotor vision-guided autonomous landing on a moving platform .....	YUAN Zehui, CHEN Guodong, LI Shizhong(60)
Research on pseudo arc-length algorithm for strong discontinuity based on coordinate transformation .....	CHEN Zeping, WANG Chentao, LI Kun, et al(68)
Formulation design of main charge of combustion tear gas bomb based on the uniform design method .....	ZHAI Haolong, CUI Xiaoping, CAO Yongfeng(77)
Research on the cross-monitoring vidicon trajectory prediction method based on track identifiers .....	YUAN Shou, QIAO Yongjun, WANG Liyuan, et al(87)
Research on application of machine learning to reverse identification of aerospace structure loads .....	GUO Chenyu, JIANG Liangliang, ZHANG Xi, et al(96)
UAV task allocation based on firework algorithm under uncertain conditions .....	YU Jiayang, GUO Jiansheng, ZHANG Xiaofeng, et al(104)
Performance analysis of quadrupole electromagnetic railgun launchers based on multi-field coupling simulation .....	DU Xiangyu, LIU Shaowei, GUAN Jiao(112)
Application of 3D variational numerical weather forecast to ballistic solutions .....	JING Yinhua, LI Yan, CHEN Lin(121)
Control strategy of parallel operation of an inverter and a diesel generator set controlled by a VSG .....	ZHAO Youcheng, ZHU Changqing, LIU Jinning, et al(127)
Numerical simulation and experimental research on pressure cycling life of hydraulic mechanical units .....	XU Yutong, ZHU Yun, SHENG Feng(133)
Research on the mechanical fault diagnosis method based on adaptive Fourier decomposition and synchronous extraction transform .....	CHEN Zihui, LI Zhinong, GU Shipeng, et al(139)

# JOURNAL OF ORDNANCE EQUIPMENT ENGINEERING

Vol. 44 No. 4(Sum. No. 297) Apr. 2023

---

---

- Tolerance analysis of the gun shell-throwing mechanism based on SDT model and Monte Carlo method**  
..... WEI Yuedong, FANG Jun(146)
- Vibration reduction optimization of electromagnetic rail launchers based on stiffness matching**  
..... REN Shida, FENG Gang, LIU Shaowei, et al(155)
- Fault diagnosis of industrial robot gearboxes based on a deep Boltzmann machine**  
..... YU Qibing, KONG Lijie, BAI Yun, et al(163)
- The model for fault diagnosis of hydraulic systems based on the PSO-SES-BPNN algorithm**  
..... ZHAN Xin, LIU Zhuoya(172)
- Effect of defocus amount on properties of GNPs/AISi10Mg composites formed by SLM**  
..... SUN Yingjian, LIU Yu, GANG Jianhua, et al(179)
- Numerical simulation of critical initiation characteristics of the explosive PBX-9404** ..... LI Dingding, HE Zhongqi(186)
- Research on oblique penetration resistance of Ti/Al<sub>3</sub>Ti laminate composites based on the material point method**  
..... XIE Guilan, HOU Kun, GONG Shuguang, et al(194)
- Effect of Y(NO<sub>3</sub>)<sub>3</sub> doping on the microstructure and wear resistance of AZ91D micro-arc oxidation coating**  
..... ZHANG Hongtao, WANG Tiecheng, ZHANG Yunlong, et al(200)
- Effect of heat treatment on copper/steel explosive composites** ..... ZHU Lei, LIU Linjie, WANG Hunian(206)
- A channel adaptive unsupervised training and identification method for emitters**  
..... WANG Cong, DAN Bo, ZHANG Caisheng(211)
- Sliding mode control of electromechanical actuators based on an improved RBF network**  
..... LI Donghui, WANG Lixian, ZHOU Man, et al(217)
- Motion control of robotic fish based on RBF neural network adaptive sliding mode**  
..... WANG Zhiping, LI Zonggang, CHEN Yinjuan, et al(224)
- Estimation methods of frequency hopping parameters of small-scale UAV remote controllers**  
..... XU Yajun, TANG Wenbo, LU Hede, et al(233)
- Automatic marking of semi-supervised landing gears based on CenterNet**  
..... FANG Wei, TANG Miao, YAN Wenjun, et al(239)
- Frequency domain response identification method for small unmanned helicopters based on ACO-LEVY**  
..... LIU Xinyu, ZHOU Jian, LU Jian, et al(245)
- A salient object detection algorithm based on convex hull calculation and wavelet transform**  
..... TAN Yongqian, ZENG Fanju(252)
- Pre-processing algorithm of multispectral image strips of an aerial filter array**  
..... LI Tongshao, SUN Wenbang, HUANG Xinyu, et al(262)
- Research on target detection based on an improved YOLOv3-SPP algorithm**  
..... HONG Bihui, LI Wenbin, ZHU Wei, et al(268)
- UAV system design based on an improved visual inertial odometry** ..... WANG Rui, WANG Maosen, DAI Jinsong, et al(275)
- Risk assessment of UAV collision considering multiple factors** ... TONG Liang, GAN Xusheng, ZHANG Honghong, et al(282)
- Individual identification for a radar emitter combined with attention mechanism and CNN**  
..... YANG Haiyu, GUO Wenpu, KANG Kai, et al(290)



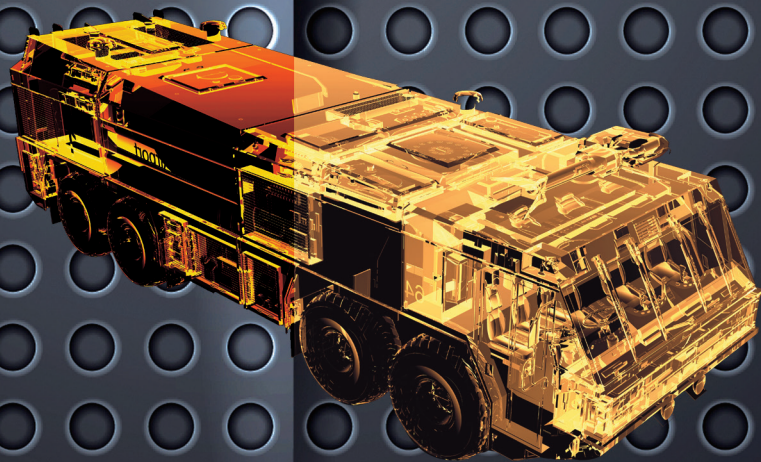
中文核心期刊  
CSCD核心期刊  
中国科技核心期刊  
RCCSE中国核心学术期刊  
美国化学文摘收录期刊  
美国EBSCO数据库收录期刊  
美国乌利希期刊指南收录期刊  
中国兵工专业文献数据库收录期刊  
中国学术期刊评价数据库来源刊  
CNKI中国期刊全文数据库来源刊  
中国科技论文在线数据库来源刊  
中国学术期刊文摘数据库 (CSAD) 收录

# 兵器装备工程学报

Journal of Ordnance Equipment Engineering

主管单位  
中国兵器装备集团有限公司

主办单位  
重庆市兵工学会  
重庆理工大学



兵器装备工程学报 ISSN 2096-2304 定价：40元 (人民币)  
CN 50-1213/TJ

封面设计：唐云