

目次

综述

导弹武器命中精度评估研究综述	苏敬,何华锋(1)
大功率电力电子器件散热研究综述	李广义,张俊洪,高键鑫(8)
长寿命放射性惰性气体同位素检测方法研究进展	游翔宇,王明东,董洪松,曾俊康,朱亚洲,冯高平(15)

装备理论与装备技术

HTPE 推进剂的能量性能研究	付小龙,蔚红建,张崇民,樊学忠,李吉祯(23)
某小口径枪弹弹头挤进过程数值仿真与分析	唐欣,周克栋,陆野,沈超(29)
某无坐力炮不同弹带挤进过程差异性数值模拟分析	苗军,陶钢,王星红,李召(34)
小口径旋转稳定弹在控制作用下的弹道特性	杨杰,谢飞,常思江,李响(40)
半穿甲弹侵爆复合防护结构仿真分析	孟德荣,贾振铎,赵铮(46)
一种带隔板双层药型罩结构的优化设计	段聪慧,尹建平,马国徽,张小静(51)
基于 ISIGHT 的人枪系统多参数动态优化设计	王力,杨臻,邓大建,咎博勋,蔡翹楚(55)
某大口径火炮系列杀爆弹地面密集度影响因素回归分析	朱乐乐,王雨时,刘锦春(61)
质量偏心对旋转榴弹气动特性及飞行稳定性的影响	黄钰哲,陶钢,庞春桥(65)
二次燃烧对燃气弹射初容室载荷影响数值研究	胡晓磊,孙船斌,郭佳肄,刘涛(70)
计层侵彻建筑物靶标模块化设计及应用	谷建光,刘阳,肖力田,施鹏,苏剑彬(74)
军用多轮电驱车辆稳定性及转矩分配控制	马晓军,王科涓,刘春光,张征(79)
提高末制导炮弹在高原地区射击精度研究	刘玉文,段衍安,蒋明,蔡宏图(85)
基于 Recurdyn 的三角履带行驶系统建模及仿真	胡彩兵,涂群章,杨旋,蒋成明,潘明(89)
LFMCW 雷达频率源扫频线性度与距离分辨率研究	申江江,何颀,于志军,孙永芹,何波贤,赵成斌(95)
雷达天线伺服系统误差分析	余驰,杨超,张钢峰(100)
百度离线地图在导弹飞行试验中的应用	于海山,任宏光,王永刚(106)
闭锁块偏转式机心强度和疲劳寿命分析	杨高伟,王惠源,黄少保,王志杰(112)
基于模糊集理论和 TOPSIS 的 FMEA 分析方法	欧阳中辉,胡道畅,陈青华,樊辉锦(117)
液体火箭发动机射流泵供应系统仿真分析	何宏疆,孙海雨,王鹏武,张琳(124)

## 基础理论与应用研究

爆炸活塞式分离器的设计与试验研究	郭晨冰,杨 洋,赵 铮(129)
粉末/液体燃料组合发动机燃烧性能数值研究	台经华,卓长飞,蒋显松,蔡雨娇(134)
不同坡膛锥度对弹丸挤进过程影响仿真研究	何 行,彭松江,邱群先,宋海通,贺旭光(141)
联合 ACF 与 YOLOv3 的目标识别方法研究	何伟鑫,邓建球,逯 程,丛林虎(147)
超音速条件下船尾形弹尾减阻机理研究	宋 超,任冬冬,姚 鑒(154)
隔板对喇叭形铜铝复合药型罩射流性能的影响	吉 庆,王志军,赵飞扬,董理赢,汤雪志,张小静(160)
基于三角模糊数的反潜巡逻机搜潜决策技术	杨少伟,鞠建波,郁红波(165)
基于时空网络的地铁车辆运用与检修优化模型	姜建萍,徐永能,吴任飞,杨艳娟(171)
基于扩展 HTN 的作战任务混合策略分解方法	赵佳然,杜伟伟,石 昊(177)
弹壳底部平底成形工艺优化	廖仕军,吕 刚,薛 松,孙 强,蒲 羽(182)
无线传感器枝干识别网络错误数据检测算法	张定祥(186)
基于混沌算法的高端装备指令数据加密方法	霍颖瑜(190)

## 信息科学与控制工程

基于流体模型的多智能体分组避障方法	田宝国,吴尚烨(194)
战场态势信息共享网络数据防篡改方法设计	蒋诚智,金卫健,袁新雅(201)
基于全局最优变换矩阵的图像拼接方法	孙商文,刘 宇,徐昭洪,王昱峰(207)
配备 GPS/INS 组合导航系统的无人机诱捕方法	王文益,陈 晨(212)
雷达通信干扰一体化 OFDM 共享波形优化方法	朱晟坤,杨瑞娟,左家骏,李东瑾(218)
基于改进鱼群算法的城轨列车运行均衡调整研究	杨艳娟,徐永能,董瑞超,景顺利,姜建萍(224)
基于改进 EKF 的柔性绳索自动升降装置姿态估计	张富春,郑武略,汪 豪,吴阳阳,丁红涛,崔家山(230)

## 光学工程与电子技术

一种深空探测多功能光学系统设计	白 瑜,张 辉,刘恩海(237)
基于 YOLO 的人工智能飞机尾涡识别研究	潘卫军,段英捷,易文豪,张 强,韩 帅(242)
基于色彩恒常理论的多光谱图像真彩色复原技术	张星铭,孙文邦,岳 广(248)
基于千兆以太网的弹载数据采集系统设计	张少芳,李献军,王月春,杨立云(257)

# JOURNAL OF ORDNANCE EQUIPMENT ENGINEERING

Vol. 41    No. 11 (Sum. No. 268)    Nov. 2020

## CONTENTS

<b>Review of Research on Missile Weapon Hit Precision Evaluation</b>	<i>SU Jing, HE Huafeng</i> (1)
<b>Review on Heat Dissipation of High Power Electronic Devices</b>	<i>LI Guangyi, ZHANG Junhong, GAO Jianxin</i> (8)
<b>Research Progress on Long-Lived Radioactive Noble Gas Isotope Detection</b>	
.....	<i>YOU Xiangyu, WANG Mingdong, DONG Hongsong, et al</i> (15)
<b>Theoretical Study on Energy Characteristics of HTPE Propellant</b>	<i>FU Xiaolong, YU Hongjian, ZHANG Chongmin, et al</i> (23)
<b>Numerical Simulation and Analysis of Engraving Process of a Small Caliber Bullet</b>	
.....	<i>TANG Xin, ZHOU Kedong, LU Ye, et al</i> (29)
<b>Numerical Simulation and Analysis of Differences in Different Rotating Band Extrusion Processes of Recoilless Gun</b>	
.....	<i>MIAO Jun, TAO Gang, WANG Xinghong, et al</i> (34)
<b>Trajectory Characteristics of Small Caliber Spin-Stabilized Projectile Under Control</b>	
.....	<i>YANG Jie, XIE Fei, CHANG Sijiang, et al</i> (40)
<b>Simulation Analysis of Composite Protective Structure of Semi-Piercing Projectile Penetrating and Exploding</b>	
.....	<i>MENG Derong, JIA Zhenduo, ZHAO Zheng</i> (46)
<b>Invention Relates to an Optimized Design of a Double-Layer Cartridge Hood with Diaphragm</b>	
.....	<i>DUAN Conghui, YIN Jianping, MA Guohui, et al</i> (52)
<b>Multi Parameter Dynamic Optimization Design of Man-Gun System Based on ISIGHT</b>	
.....	<i>WANG Li, YANG Zhen, DENG Dajian, et al</i> (55)
<b>Regression Analysis of Influence Factors to Ground-Dispersion of HE Projectiles For a Large Caliber Gun-Howitzer</b>	
.....	<i>ZHU Lele, WANG Yushi, LIU Jinchun</i> (61)
<b>Effect of Mass Eccentricity on Aerodynamic Characteristics and Flight Stability of Rotating Projectile</b>	
.....	<i>HUANG Yuzhe, TAO Gang, PANG Chunqiao</i> (65)
<b>Numerical Simulation of Secondary-Combustion Influence on Gas-Ejection Load in Initial Chamber</b>	
.....	<i>HU Xiaolei, SUN Chuanbin, GUO Jiayi, et al</i> (70)
<b>Application of Modularity Design Technique of Building Target Used in Layer-Count Penetration Test</b>	
.....	<i>GU Jianguang, LIU Yang, XIAO Litian, et al</i> (74)
<b>Control Method of Stability and Torque Distribution of Military Electric Vehicle with Multi-Wheel</b>	
.....	<i>MA Xiaojun, WANG Keyu, LIU Chunguang, et al</i> (79)
<b>Research on Firing Accuracy of Terminal Guided Projectile on Plateau</b>	<i>LIU Yuwen, DUAN Yan'an, JIANG Ming, et al</i> (85)
<b>Modeling and Simulation of Triangle Crawler Driving System Based on Recurdyn</b>	
.....	<i>HU Caibing, TU Qunzhang, YANG Xuan, et al</i> (89)
<b>Analysis of Frequency Sweep Linearity Error and Range Resolution of LFM CW Radar</b>	
.....	<i>SHEN Jiangjiang, HE Xie, YU Zhijun, et al</i> (95)
<b>Error Analysis of Radar Antenna Servo System</b>	<i>YU Chi, YANG Chao, ZHANG Gangfeng</i> (100)
<b>Application of off-Line Baidu Map in Missile Flight Test</b>	<i>YU Haishan, REN Hongguang, WANG Yonggang</i> (106)
<b>Analysis of Strength and Fatigue Life of Breech with Tilting Locking Block</b>	
.....	<i>YANG Gaowei, WANG Huiyuan, HUANG Shaobao, et al</i> (112)
<b>Research on FMEA Analysis Method of Diesel Engine Based on Fuzzy Set Theory and TOPSIS</b>	
.....	<i>OUYANG Zhonghui, HU Daochang, CHEN Qinghua, et al</i> (117)

# JOURNAL OF ORDNANCE EQUIPMENT ENGINEERING

Vol. 41    No. 11 (Sum. No. 268)    Nov. 2020

Simulation and Analysis of Jet Pump Supply System on Liquid Rocket Engine	
.....	HE Hongjiang, SUN Haiyu, WANG Pengwu, et al(124)
Design and Experimental Study of Explosive Piston Separator	GUO Chenbing, YANG Yang, ZHAO Zheng(129)
Numerical Simulation Investigation on Combustion Performance of Powder/Liquid Fuel Combined Ramjet	
.....	TAI Jinghua, ZHUO Changfei, JIANG Xiansong, et al(134)
Simulation Study on Impact of Different Tapers on Projectile Squeezing Pross	
.....	HE Hang, PENG Songjiang, QIU Qunxian, et al(141)
Research on Target Recognition Method Based on ACF and YOLOv3	HE Weixin, DENG Jianqiu, LU Cheng, et al(147)
Research on Drag Reduction Mechanism of Projectile Boattail Under Supersonic Condition	
.....	SONG Chao, REN Dongdong, YAO Liu(154)
Effect of baffle on Jet Performance of Horn-Shaped Double-Layer Liner	
.....	JI Qing, WANG Zhijun, ZHAO Feiyang, et al. (160)
Decision-Making Technology of Searching Submarine for Anti-Submarine Patrol Aircraft Based on Triangular Modulus and Number	YANG Shaowei, JU Jianbo, YU Hongbo(165)
Optimization Model of Metro Vehicle Operation and Maintenance Based on Spatio-Temporal Network	
.....	JIANG Jianping, XU Yongneng, WU Renfei, et al(171)
Hybrid Strategy Decomposition Method for Combat Missions Based on Extended HTN	
.....	ZHAO Jiaran, DU Weiwei, SHI Hao(177)
Study on Flattening Shaping Process-Optimized for Campaign Bullet	LIAO ShiJun, LYU Gang, XUE Song, et al(182)
WSN Branch Identification Network Error Data Detection Algorithm	ZHANG Dingxiang(186)
Encryption Method of High-End Equipment Instruction Data Based on Chaos Algorithm	HUO Yingyu(190)
Multi-Agent Group Obstacle Avoidance Method Based on Fluid Model	TIAN Baoguo, WU Shangye(194)
Design of Anti-Tampering Method for Battlefield Situation Information Sharing Network Data	
.....	JIANG Chengzhi, JIN Weijian, YUAN Xinya(201)
Image Stitching Based on Global Optimal Homography Matrix	SUN Shangwen, LIU Yu, XU Zhaohong, et al(207)
Method of Trapping UAV Equipped with GPS/INS Integrated Navigation System	WANG Wenyi, CHEN Chen(212)
Integrative Waveform Optimization of Radar Communication Jamming Based on OFDM Signal	
.....	ZHU Shengkun, YANG Ruijuan, ZUO Jiajun, et al(218)
Research on Urban Rail Train Operational Equilibrium Adjustment Based on Improved Fish School Algorithm	
.....	YANG Yanjuan, XU Yongneng, DONG Ruichao, et al(224)
Attitude Estimation of Flexible Rope Automatic Lifting Device Based on Improved EKF	
.....	ZHANG Fuchun, ZHENG Wulue, WANG Hao, et al(230)
Design of a Multi-Functional Optical System for Deep Space Rploration	BAI Yu, ZHANG Hui, LIU Enhai(237)
Research on Aircraft Wake Vortex Recognition Based on YOLO Artificial Intelligence	
.....	PAN Weijun, DUAN Yingjie, YI Wenhao, et al(242)
True Color Restoration of Multispectral Image Based on Color Constancy	
.....	ZHANG Xingming, SUN Wenbang, YUE Guang(248)
Designing Missile Storage Data Recorder Based on Gigabit Ethernet	
.....	ZHANG Shaofang, LI Xianjun, WANG Yuechun, et al(257)