

目次

航空宇航科学与技术

翼伞系统自主归航的关键技术研究综述 ..... 孙青林,杨金山,孙昊,陈增强(1)

碳类粒子对固体推进剂束流发散角度影响的实验研究 ..... 欧阳,吴建军,程玉强,张宇,车碧轩(16)

高速飞行器新型半主动冷却装置温控机理分析 ..... 郭庆阳,马锐,李世斌(29)

空间目标探测多传感器协同规划 ..... 龙洗,蔡伟伟,杨乐平(37)

航天器轨道机动自适应逆向移动滑窗检测方法 ..... 李泽越,杨震,李海阳,罗亚中(45)

考虑推力损失的运载火箭主动段容错控制 ..... 谢昌霖,杨述明,程玉强(54)

复杂约束下航天器高效机动路径规划和时域调节方法 ..... 岳程斐,鲁明,吴凡,霍涛,陈雪芹(63)

超声速巡航导弹气动力与推力参数一体化在线辨识 ..... 江振宇,唐晓斌,刘双,杨承业(74)

双参数弹性基功能梯度圆柱管自由振动的高阶梁理论解  
..... 马维力,崔辉如,申柳雷,王诗琦,彭帆,李显方(86)

流体动力与机电控制

声波式机械天线的谐振频率调控方法 ..... 崔勇,李良亚,王琛,黄玉平,袁志鸿,陶云飞(96)

货架下方可通行无人仓中多自动导引车系统的路径规划 ..... 杨洪玖,赵国威,李洪波,程富阳(104)

永磁同步电机全转速范围无位置传感器控制 ..... 刘计龙,付康壮,麦志勤,李科峰,张伟伟(114)

调节阀多测点空化诱导振动敏感性分析 ..... 刘秀梅,韦建秋,龙正,李贝贝,孙深圳(125)

比例阀控气缸系统确定性鲁棒反步运动跟踪控制器 ..... 浦晨玮,刘磊,何迪,钱鹏飞(133)

基于低通滤波器的柔性关节空间机器人时延估计跟踪控制 ..... 徐河振,于潇雁,张宇涵,陈力(142)

武器装备抗毁性分析与评估方法 ..... 黄通,高钦和,刘志浩,王冬,马栋,高蕾(150)

设计参数对一体化准零刚度隔振器冲击隔离性能的影响 ..... 丁伯森,刘海平,朱冬梅(159)

电子科学与技术·计算机科学与技术·物理学

体硅 CMOS 工艺下一种带隙基准的单粒子辐射特性分析  
..... 文溢,陈建军,梁斌,池雅庆,邢海源,姚啸虎(169)

卫星领域语料库构建与命名实体识别 ..... 徐聪,石会鹏,陈志敏,张鑫宇,王静,杨甲森(175)

利用舰船内部磁场的反演建模方法 ..... 何保委,张俊洪,刘胜道,周国华,唐烈峥,宗敬文(184)

多途混响环境中声扩频信号线性与相关性分析 ..... 唐永壮,周其斗,谢志勇,吕晓军,纪刚(191)

发卡式填充结构的直线式移相变压器设计及其磁场分析 ..... 赵镜红,薛婕,严思念(201)

利用点电流源和 Tikhonov 正则化的潜艇稳恒电场反演方法 ..... 张建春,刘春阳,赵玉龙(212)

自相关加权融合的高精度频率估计算法 ..... 刘康,何明浩,陈昌孝,曾莎,李争(222)

积分故障分析下的 Midori128 密码算法安全性评估 ..... 魏悦川,贺水喻,潘峰,王湘儒(229)

# JOURNAL OF NATIONAL UNIVERSITY OF DEFENSE TECHNOLOGY

Vol. 46 No. 4

August 2024

## CONTENTS

### Aeronautical and Astronautical Science and Technology

- Review of key technologies for autonomous homing of parafoil systems ..... *SUN Qinglin, YANG Jinshan, SUN Hao, CHEN Zengqiang* ( 1 )
- Experimental study on effects of carbon dopants on the beam divergence angles of solid propellants  
..... *OU Yang, WU Jianjun, CHENG Yuqiang, ZHANG Yu, CHE Bixuan* ( 16 )
- Analysis of temperature control mechanism of a novel semi-active cooling device for high-speed flight vehicle  
..... *GUO Qingyang, MA Rui, LI Shibin* ( 29 )
- Multi-sensor cooperative planning of space objects detection ..... *LONG Xi, CAI Weiwei, YANG Leping* ( 37 )
- Adaptive antidromic window moving method for spacecraft orbital maneuver detection  
..... *LI Zeyue, YANG Zhen, LI Haiyang, LUO Yazhong* ( 45 )
- Fault tolerant control of launch vehicle boost phase considering thrust loss ..... *XIE Changlin, YANG Shuming, CHENG Yuqiang* ( 54 )
- Time efficient attitude maneuver path planning and time scaling method under complex constraints .....  
..... *YUE Chengfei, LU Ming, WU Fan, HUO Tao, CHEN Xueqin* ( 63 )
- Integrated online identification of aerodynamic and thrust parameters in supersonic cruise missile  
..... *JIANG Zhenyu, TANG Xiaobin, LIU Shuang, YANG Chengye* ( 74 )
- Free vibration of cylindrical functionally graded tubes on bi-parameter foundation based on a higher-order beam theory  
..... *MA Weili, CUI Huiru, SHEN Liulei, WANG Shiqi, PENG Fan, LI Xianfang* ( 86 )

### Fluid Power and Mechatronic Control

- Resonant frequency control method of acoustic mechanical antenna  
..... *CUI Yong, LI Liangya, WANG Chen, HUANG Yuping, YUAN Zhihong, TAO Yunfei* ( 96 )
- Path planning of a multiple AGV system in unmanned warehouse with bottom passable shelves  
..... *YANG Hongjiu, ZHAO Guowei, LI Hongbo, CHENG Fuyang* ( 104 )
- Position sensorless control of permanent magnet synchronous motors over the full speed range  
..... *LIU Jilong, FU Kangzhuang, MAI Zhiqin, LI Kefeng, ZHANG Weiwei* ( 114 )
- Analysis of cavitation-induced vibration sensitivity in regulating valve using multiple measuring points  
..... *LIU Xiumei, WEI Jianqiu, LONG Zheng, LI Beibei, SUN Shenzhen* ( 125 )
- Deterministic robust backstepping motion tracking controller for proportional valve-controlled pneumatic cylinder system  
..... *PU Chenwei, LIU Lei, HE Di, QIAN Pengfei* ( 133 )
- Time-delay estimation tracking control of flexible-joint space robot based on low-pass filter  
..... *XU Hezhen, YU Xiaoyan, ZHANG Yuhan, CHEN Li* ( 142 )
- Analysis and evaluation method for invulnerability of weapons  
..... *HUANG Tong, GAO Qinhe, LIU Zhihao, WANG Dong, MA Dong, GAO Lei* ( 150 )
- Influences of design parameters on shock isolation performance of integrated quasi-zero stiffness isolator  
..... *DING Bosen, LIU Haiping, ZHU Dongmei* ( 159 )

### Electronic Science and Technology · Computer Science and Technology · Physics

- Analysis on single-event radiation characteristics for a bandgap reference in bulk CMOS technologies  
..... *WEN Yi, CHEN Jianjun, LIANG Bin, CHI Yaqing, XING Haiyuan, YAO Xiaohu* ( 169 )
- Satellite domain corpus construction and named entity recognition  
..... *XU Cong, SHI Huipeg, CHEN Zhimin, ZHANG Xinyu, WANG Jing, YANG Jiasen* ( 175 )
- Inversion modeling method utilizing ship's internal magnetic field  
..... *HE Baowei, ZHANG Junhong, LIU Shengdao, ZHOU Guohua, TANG Liezheng, ZONG Jingwen* ( 184 )
- Analysis of linearity and correlation of acoustic spread spectrum signal in multipath reverberation channel  
..... *TANG Yongzhuang, ZHOU Qidou, XIE Zhiyong, LYU Xiaojun, JI Gang* ( 191 )
- Design and magnetic field analysis of linear phase-shifting transformer with hairpin filling structure ... *ZHAO Jinghong, XUE Jie, YAN Sinian* ( 201 )
- Inversion method of submarine steady electric field using point-type current source and Tikhonov regularization  
..... *ZHANG Jianchun, LIU Chunyang, ZHAO Yulong* ( 212 )
- High precision frequency estimation algorithm for autocorrelation weighted fusion  
..... *LIU Kang, HE Minghao, CHEN Changxiao, ZENG Sha, LI Zheng* ( 222 )
- Security evaluation of Midori128 cryptographic algorithm under integral fault analysis  
..... *WEI Yuechuan, HE Shuiyu, PAN Feng, WANG Xiangru* ( 229 )