

## 目次

### 航天工程

航天器近距离相对悬停被动安全特性分析..... 李彬,张洪波,郑伟(1)

腔体增压等离子体合成射流激励器工作特性..... 周岩,夏智勋,罗振兵,彭文强,邓雄,王林(12)

基于改进协同遗传算法的有效载荷系统功能序列规划方法..... 王静,王春梅,姚秀娟(19)

非合作目标视觉/惯导相对导航及传感器自标定方法..... 张世杰,宁明峰,陈健(25)

基于不确定性的末制导初始参数优化设计方法..... 张海瑞,王浩,王尧,洪东跑,卜奎晨(33)

再入快速抵达轨迹优化设计方法..... 庄学彬,张耀磊,谢泽兵,王玉林(39)

救生伞背带分系统对假人动载的影响..... 丰志伟,张国斌,张青斌,王璐,周喜生(44)

箭(弹)级间螺栓法兰连接结构冲击失效实验与数值仿真... 袁杰红,田彤辉,王青文,李道奎,陈柏生(50)

三轴磁强计晃动对测量结果的影响分析及校正..... 林朋飞,林春生,张宁,贾文抖(58)

### 机械工程·控制科学与工程

全液压驱动管道机器人公理化设计..... 房德磊,尚建忠,罗自荣,杨军宏,吴伟(63)

双层气囊隔振装置多目标协同姿态控制方法..... 卜文俊,施亮,何琳,徐伟(70)

柔性背腔鼓型消声器声学特性分析..... 侯九霄,朱海潮,毛荣富,袁苏伟(75)

基于反正切函数的测试性分配方法..... 杨鹏,胡业荣,吴伟兴,邱静(83)

船舶降噪工程技术集成优化方法..... 程果,何琳,王迎春,崔立林(88)

梅花形弹性联轴器液压泵机组不对中故障振动分析..... 宣元,何琳,廖健(94)

考虑落角约束与驾驶仪特性的自适应径向基空间末制导律..... 姜尚,田福庆,孙世岩,梁伟阁(100)

舰船轴频电场产生机理及控制技术..... 姜润翔,张伽伟,陈新刚(111)

舰船腐蚀电场建模及补偿最优解验证..... 何芳,王向军,张建春(118)

改进遗传算法在传声器阵列优化中的应用..... 曹孟华,李龙,谢红卫(126)

### 信息与通信工程·电子科学与技术·材料科学与工程

太阳观测卫星的数传天线波束及其指向设计..... 曾麒麟,于锡峰,熊蔚明(135)

基于改进能量检测的航空集群网络干扰感知..... 黎海涛,刘长军(143)

近地卫星Ka频段数传链路抗雨衰自适应模式设计..... 张颖,熊蔚明,王竹刚(149)

利用过阻尼电路合成高压方波脉冲..... 赵越,蒋吉昊,周良骥,陈林,王勤,李逢,康军军,王治(156)

系统可靠寿命的不确定性分析及其高效方法..... 阙丽娟,徐吉辉,陈玉金(161)

提高近场精度的海洋声学快速场改进模型..... 刘巍,肖文斌,程兴华,王勇献,张理论(168)

非平坦地形双基地海底混响的快速计算方法改进..... 关承宇,周泽民,曾新吾(175)

PMI泡沫夹层结构雷达天线罩间接热-结构耦合分析与实验研究..... 刘钧,周远明(184)

# JOURNAL OF NATIONAL UNIVERSITY OF DEFENSE TECHNOLOGY

Vol. 41 No. 6

December 2019

## CONTENTS

### Aerospace Engineering

- Passive safety analysis of close relative hovering for spacecraft ..... *LI Bin, ZHANG Hongbo, ZHENG Wei* ( 1 )
- Characterization of plasma synthetic jet actuator with cavity pressurization  
..... *ZHOU Yan, XIA Zhixun, LUO Zhenbing, PENG Wenqiang, DENG Xiong, WANG Lin* ( 12 )
- Functional sequence planning method based on improved co-evolutionary genetic algorithm for payload system  
..... *WANG Jing, WANG Chunmei, YAO Xiujuan* ( 19 )
- Method of vision/inertial relative navigation for non-cooperative target and sensors self-calibration  
..... *ZHANG Shijie, NING Mingfeng, CHEN Jian* ( 25 )
- Uncertainty-based design optimization of terminal guidance initial parameters  
..... *ZHANG Hairui, WANG Hao, WANG Yao, HONG Dongpao, BU Kuichen* ( 33 )
- Method of trajectory design and optimization for fast reentry arrival ..... *ZHUANG Xuebin, ZHANG Yaolei, XIE Zebing, WANG Yulin* ( 39 )
- Influence of webbing subsystem of survival parachute on the dynamic load of the dummy  
..... *FENG Zhiwei, ZHANG Guobin, ZHANG Qingbin, WANG Lu, ZHOU Xisheng* ( 44 )
- Experimental and numerical simulation on failure of bolted flange connection structure between stages of rocket (missile) under impact load  
..... *YUAN Jiehong, TIAN Tonghui, WANG Qingwen, LI Daokui, CHEN Baisheng* ( 50 )
- Analysis of the influence and calibration of tri-axial magnetometer shaking on measurement  
..... *LIN Pengfei, LIN Chunsheng, ZHANG Ning, JIA Wendou* ( 58 )

### Mechanical Engineering · Control Science and Engineering

- Axiomatic design for purely hydraulic drive in-pipe robot ..... *FAND Delei, SHANG Jianzhong, LUO Zirong, YANG Junhong, WU Wei* ( 63 )
- Multi-objective coordinated attitude control method for dual layer air spring vibration isolation mounting  
..... *BU Wenjun, SHI Liang, HE Lin, XU Wei* ( 70 )
- Acoustic characteristic of drum-like silencer with flexible back cavity ..... *HOU Juuxiao, ZHU Haichao, MAO Rongfu, YUAN Suwei* ( 75 )
- Testability allocation method based on inverse tangent function ..... *YANG Peng, HU Yerong, WU Weixing, QIU Jing* ( 83 )
- Optimized composition method of the ships noise-control techniques ..... *CHENG Guo, HE Lin, WANG Yingchun, CUI Lilin* ( 88 )
- Misalignment analysis of pumps-motor aggregate with plum-shaped flexible couplings ..... *XUAN Yuan, HE Lin, LIAO Jian* ( 94 )
- Space terminal guidance law based on adaptive radial basis function with terminal angle constraints and autopilot characteristic  
..... *JIANG Shang, TIAN Fuqing, SUN Shiyan, LIANG Weige* ( 100 )
- Ship's shaft-related electric field mechanism of production and countermeasure technology  
..... *JIANG Runxiang, ZHANG Jiawei, CHEN Xingang* ( 111 )
- Modeling of ship corrosion electric field and verification of optimal compensation solution  
..... *HE Fang, WANG Xiangjun, ZHANG Jianchun* ( 118 )
- Application of improved genetic algorithm in microphone array optimization ..... *CAO Menghua, LI Long, XIE Hongwei* ( 126 )

### Information and Communication Engineering · Electronic Science and Technology · Materials Science and Engineering

- Design of data transmission antenna beam angles and directions for solar observatory satellite  
..... *ZENG Qilin, YU Xizheng, XIONG Weiming* ( 135 )
- Improved energy detection based jamming sensing for aeronautic swarm network ..... *LI Haitao, LIU Changjun* ( 143 )
- Adaptive mode design of near-earth satellite data transmission link for resistance to rainfall attenuation at Ka band  
..... *ZHANG Ying, XIONG Weiming, WANG Zhugang* ( 149 )
- Using over-damped electric circuits to synthesize high voltage rectangular pulse  
..... *ZHAO Yue, JIANG Jihao, ZHOU Liangji, CHEN Lin, WANG Meng, LI Feng, KANG Junjun, WANG Zhi* ( 156 )
- Uncertainty analysis of systematic reliability life and its efficient solution ..... *KAN Lijuan, XU Jihui, CHEN Yujin* ( 161 )
- Improving near-source region accuracy algorithms of fast field program of ocean acoustics  
..... *LIU Wei, XIAO Wenbin, CHENG Xinghua, WANG Yongxian, ZHANG Lilun* ( 168 )
- Improved fast calculation of non-flat bistatic bottom reverberation ..... *GUAN Chengyu, ZHOU Zemin, ZENG Xinwu* ( 175 )
- Thermal-structure coupling analysis and experimental investigation of the radome fabricated by PMI foam sandwich structure  
..... *LIU Jun, ZHOU Yuanming* ( 184 )