国 防 科 技 大 学 学 报

2023 年 2 月　　GUOFANG KEJI DAXUE XUEBAO　　第 45 卷 第 1 期

目　　次

信息与通信工程·计算机科学与技术

忆阻器类脑计算芯片研究现状综述 …… 陈长林,骆畅航,刘　森,刘海军(1)
大型卫星地面站故障诊断的增强分层有向图方法 …… 李井源,周　蓉,刘增军,孙广富(15)
OFDM-MIMO 雷达转发式主瓣干扰自适应抑制方法 …… 熊智敏,王党卫,李星辉(25)
非对称 Colonel Blotto 博弈模型下的多信道功率分配抗干扰 …… 魏　鹏,王世练,陆锐敏,骆俊杉(35)
广义 S 变换和阈值分割联合抗频谱扩展 – 压缩移频干扰…… 李　欣,罗富友,袁　天(49)
多核数字信号处理器并行矩阵转置算法优化
…… 裴向东,王庆林,廖林玉,李荣春,梅松竹,刘　杰,庞征斌(57)
旋转永磁式机械低频天线的系统设计与验证 …… 郝振洋,汪禹萱,周　强,李　雪,张绮瑶,施　伟(67)
低空复杂场景红外弱小目标快速精准检测 …… 周　海,李保权,王怀超,卞春江(74)
多核数字信号处理器矩阵乘卷积算法性能评测
…… 王庆林,裴向东,廖林玉,王浩旭,李荣春,梅松竹,李东升(86)

航天工程·电子科学与技术

长贮过程中发动机 HTPB 推进剂老化机理分析…… 郭　宇,申志彬,李海阳,张　漩,李志杰(95)
发射井内弹 – 筒系统抗爆减震设计…… 周岸峰,郭　振,李道奎,周仕明,姜人伟(102)
低温跨声速风洞设计中的真实气体效应研究 …… 黄知龙,王　宁,史志伟,廖达雄(110)
涡轮盘疲劳寿命可靠性设计仿真及优化策略 …… 张文鑫,吕震宙(117)
降雨损耗对 Q 频段地球静止轨道下行链路 *I/N* 分布的影响
…… 王　静,姚秀娟,高　翔,智　佳,陈　托,董苏惠,孙云龙(129)
电化学极化状态对潜艇螺旋桨扰动电场模型的影响 …… 何　芳,王向军(136)
电磁脉冲对高频结构的热效应分析…… 袁玉章,孟　进,朱丹妮,王海涛,崔言程(144)
脱壳弹弹托分离的双目视觉测量…… 李湘平,鲁军勇,张　晓,程　龙,李松乘(150)

控制科学与工程·机械工程

针对无人机集群对抗的规则与智能耦合约束训练方法…… 高显忠,项　磊,王宝来,贾高伟,侯中喜(157)
高精度轴类零件的砂带确定性修形方法…… 胡　皓,陈学蕾,孙梓洲,戴一帆,关朝亮(167)
自适应控制中的 Hartley 块算法及实验 …… 柴　凯,刘树勇,高伟鹏,朱石坚(174)
电控增压泵高速电磁阀电磁力与能耗特性分析 …… 吴　昕,杨　昆,赵建华,聂　涛,周　磊,曾凡明(185)
泵喷宽带非定常激振力预报与参数分析…… 武星宇,王　东,魏应三,靳栓宝,祝　昊,胡鹏飞,孙方旭(193)
考虑多性能参数的引信弹簧可靠性评估…… 杨承强,顾晓辉,潘守华(200)
两栖仿生机器人登陆自适应越障机构优化设计…… 殷　谦,王　何,宋　震,尚建忠,罗自荣(208)

本期责任编辑: 仲　辉,熊立桃,杨　琴　　**责任校对:** 何咏梅,梁　慧,罗茹馨　　**封面设计:** 陈芷怡

期刊基本参数: CN 43 –1067/T * 1956 * b * A4 * 214 * zh * P * ￥20.00 * 1200 * 24 * 2023 – 02

JOURNAL OF NATIONAL UNIVERSITY OF DEFENSE TECHNOLOGY

Vol. 45 No. 1 February 2023

CONTENTS

Information and Communication Engineering · Computer Science and Technology

Review on the memristor based neuromorphic chips ····· *CHEN Changlin*, *LUO Changhang*, *LIU Sen*, *LIU Haijun* (1)
Enhanced hierarchy directed graph method for fault diagnosis of large-scale satellite ground station ····· *LI Jingyuan*, *ZHOU Rong*, *LIU Zengjun*, *SUN Guangfu* (15)
Forward main lobe jamming adaptive suppression method for OFDM-MIMO radar ····· *XIONG Zhimin*, *WANG Dangwei*, *LI Xinghui* (25)
Multi-channel power distribution for anti-jamming based on asymmetric Colonel Blotto game ····· *WEI Peng*, *WANG Shilian*, *LU Ruimin*, *LUO Junshan* (35)
Spectrum spread and compression shift-frequency jamming suppression by combining generalized S transform and threshold segmentation ····· *LI Xin*, *LUO Fuyou*, *YUAN Tian* (49)
Optimizing parallel matrix transpose algorithm on multi-core digital signal processors ····· *PEI Xiangdong*, *WANG Qinglin*, *LIAO Linyu*, *LI Rongchun*, *MEI Songzhu*, *LIU Jie*, *PANG Zhengbin* (57)
System design and verification of rotating-magnet based mechanical low-frequency antenna ····· *HAO Zhenyang*, *WANG Yuxuan*, *ZHOU Qiang*, *LI Xue*, *ZHANG Qiyao*, *SHI Wei* (67)
Fast and accurate detection of infrared dim small target in low altitude complex scenes ····· *ZHOU Hai*, *LI Baoquan*, *WANG Huaichao*, *BIAN Chunjiang* (74)
Evaluating matrix multiplication-based convolution algorithm on multi-core digital signal processors ····· *WANG Qinglin*, *PEI Xiangdong*, *LIAO Linyu*, *WANG Haoxu*, *LI Rongchun*, *MEI Songzhu*, *LI Dongsheng* (86)

Aerospace Engineering · Electronic Science and Technology

Investigation on the aging mechanism of HTPB propellant in SRM long-term storage ····· *GUO Yu*, *SHEN Zhibin*, *LI Haiyang*, *ZHANG Xuan*, *LI Zhijie* (95)
Blast resistant and shock absorption design for missile-canister system in silo ····· *ZHOU Anfeng*, *GUO Zhen*, *LI Daokui*, *ZHOU Shiming*, *JIANG Renwei* (102)
Real-gas effects research associated with cryogenic transonic wind tunnel ··· *HUANG Zhilong*, *WANG Ning*, *SHI Zhiwei*, *LIAO Daxiong* (110)
Co-simulation of reliability optimization design for turbine disk′s fatigue life with its core optimization strategy ····· *ZHANG Wenxin*, *LYU Zhenzhou* (117)
Influence of rain attenuation on the *I*/*N* distribution of Q-band geostationary satellite orbit downlink ····· *WANG Jing*, *YAO Xiujuan*, *GAO Xiang*, *ZHI Jia*, *CHEN Tuo*, *DONG Suhui*, *SUN Yunlong* (129)
Influence of electrochemistry polarization state on electric field model of submarine propeller disturbance ····· *HE Fang*, *WANG Xiangjun* (136)
Analysis of the thermal effect of electromagnetic pulse on high frequency structure ····· *YUAN Yuzhang*, *MENG Jin*, *ZHU Danni*, *WANG Haitao*, *CUI Yancheng* (144)
Binocular vision measurement of sabot discard of shell piercing projectile ····· *LI Xiangping*, *LU Junyong*, *ZHANG Xiao*, *CHENG Long*, *LI Songcheng* (150)

Control Science and Engineering · Mechanical Engineering

Rule and intelligence coupling constraint training method for UAV swarm confrontation ····· *GAO Xianzhong*, *XIANG Lei*, *WANG Baolai*, *JIA Gaowei*, *HOU Zhongxi* (157)
Deterministic figuring method by abrasive belt for high-precision shaft parts ····· *HU Hao*, *CHEN Xuelei*, *SUN Zizhou*, *DAI Yifan*, *GUAN Chaoliang* (167)
Hartley block algorithm and experiment in adaptive control ····· *CHAI Kai*, *LIU Shuyong*, *GAO Weipeng*, *ZHU Shijian* (174)
Analysis of electromagnetic force and power loss characteristics on high-speed solenoid valve of electric-controlled booster pump ····· *WU Xin*, *YANG Kun*, *ZHAO Jianhua*, *NIE Tao*, *ZHOU Lei*, *ZENG Fanming* (185)
Prediction and parameter analysis of unsteady broadband thrust for pump jet ····· *WU Xingyu*, *WANG Dong*, *WEI Yingsan*, *JIN Shuanbao*, *ZHU Hao*, *HU Pengfei*, *SUN Fangxu* (193)
Reliability evaluation of coil spring for fuse with multiple performance parameters ····· *YANG Chengqiang*, *GU Xiaohui*, *PAN Shouhua* (200)
Optimal design of self-adaptive climbing mechanism for landing in the amphibious bionic robot ····· *YIN Qian*, *WANG He*, *SONG Zhen*, *SHANG Jianzhong*, *LUO Zirong* (208)