



中文核心期刊 中国科技论文统计源期刊 中国科学引文数据库来源期刊  
军事学核心期刊 中文科技期刊数据库 中国学术期刊(光盘版)收录期刊  
RCCSE中国核心学术期刊 美国《剑桥科学文摘》美国《乌利希期刊指南》  
英国《科学文摘》收录期刊

ISSN 1002-0640

CN 14-1138/TJ

# 火力与指挥控制

FIRE CONTROL & COMMAND CONTROL

2016.11

第41卷 VOL41  
第11期 No.11



ISSN 1002-0640

9 771002 064161

北方自动控制技术研究所主办

# 火力与指挥控制

## HUOLI YU ZHIHUI KONGZHI

本刊名由张爱萍将军题写

第 41 卷 第 11 期 (总第 260 期) 月刊 1976 年创刊 国内外公开发行

## 目 次

### 综 述

认知 MIMO 雷达波形设计研究

..... 兰 星, 李 伟, 蒋孟燃, 王兴亮, 李晓明(1)

兵力组织适应性设计问题研究

..... 孙 昱, 姚佩阳, 孙 鹏, 张 超(6)

### 理论研究

基于 Epsilon-Nash 策略的动态武器 - 目标分配方法

..... 王 色, 孙金标, 华玉光, 王继辉(12)

基于 ITS 和 OPNET 软件联合的短波网络仿真方法

..... 周得敏, 刘芸江, 李 曼, 白 翔(16)

基于变权灰色关联法的高超声速目标威胁评估

..... 巴宏欣, 王 俊, 杨颜靖(21)

基于逆合成孔径成像激光雷达的自旋小目标成像系统

..... 刘智超, 杨进华(26)

基于直觉模糊时间 Petri 网的不确定性时间推理方法

..... 任神河, 郑寇全, 雷英杰, 王 睿(30)

基于调频傅里叶变换的高速目标 ISAR 距离像算法

..... 罗文茂, 崔应留(36)

一种改进的基于交互式模型的机动目标跟踪算法

..... 左现刚, 武变霞, 王建平, 贾 蒙(41)

基于集合交的欧式误差状态估计方法 ..... 武宜川(45)

基于连分式的简化拉普拉斯函数递推算法

..... 王兆胜(48)

装备保障能力评估指标选择方法研究

..... 帅 勇, 宋太亮, 王建平, 沈 洪(51)

红外制导防空导弹落入概率评定研究

..... 姚志敏, 王庆权, 郭希维, 张晓龙(56)

基于扩展卡尔曼滤波的雷达无源定位方法

..... 孙 琳, 李小波, 周青松, 单 凉(58)

基于离差最大化的对地攻击型无人机作战效能评估

..... 王 超, 董彦非, 徐冠华, 屈高敏(62)

合成分队火力分配协同决策模型研究

..... 孔德鹏, 徐克虎, 陈金玉(66)

基于 Hough 变换的叶簇环境下 SAR/GMTI 动目标检测算法

..... 李少书, 陈华杰, 林 萍(70)

一种智能的大规模 MIMO 部分导频复用调度方案

..... 郭耀廷, 王炳和, 曲 毅, 宋德鹏(75)

基于 Multi-Agent 的航空集群系统重构机理研究

..... 胡利平, 梁晓龙, 张佳强(80)

指标融合和隐马尔可夫模型的舰船装备技术状态评估

..... 牛建钊, 耿俊豹, 魏曙寰, 刘凌刚(85)

基于贝叶斯网络的空中目标威胁估计算法

..... 翟贵敏, 董龙明, 邱瑞波, 马连森(90)

基于空间分解与混合包围盒的碰撞检测算法

..... 宋 涛, 舒 涛, 梅 朝, 张卫东(94)

虚拟射击试验中的航迹融合方法

..... 葛承奎, 朱元昌, 邱彦强, 孟宪国(98)

新颖的冗余节点无线传感网能量感知分簇算法

..... 郑 莹, 裴 芳, 董龙明(104)

基于 IMM-RUASFF 的网络化目标跟踪算法

..... 赵 彬, 于 雷, 周中良, 付昭旺, 刘宏强(108)

基于空域相关滤波的雷达回波信号降噪方法

..... 马 强, 刘 勇(113)

灰色灾变与回归分析法的航空装备不安全事件预测

..... 刘 杰, 甘旭升, 吴亚荣, 李华平(117)

航空发动机自适应模拟退火遗传算法建模

..... 段进峰, 谢寿生, 王立国, 姚凯翔, 刘蕴哲(121)

一种改进的电子情报分析模型

..... 张 强, 王红卫, 陈 游, 徐 源(124)

基于灰色层次模型的新型装备战斗力评估

..... 何 帆, 李其祥, 黄 东(129)

虚拟检测维修系统的设计与实现

..... 刘 明, 王 岁, 瞿 珏, 白柯萌(134)

防暴驱散车武器配置设计及作战效能评估

..... 王众北, 郭三学(139)

### 工程实践

分布式多平台态势一致性的实现机制 ..... 石教华(144)

基于 i.MX6 无人机视频码率受控的压缩系统设计

..... 王 健, 辛向龙, 张修飞(148)

装备维修过程中备件布局人机工效优化设计

..... 郭 璐, 王 岁, 杨 云, 刘晓卫(153)

基于 GUI 和矢量信号源的微波着陆信号模拟器设计

..... 冯 翔, 张 斌(158)

基于红外辐射计的物体光谱发射率测量方法

..... 关 威, 刘建梅, 王 琦, 傅 莉(163)

利用二极管伏安特性转移低电平干扰

..... 薛红平, 李荧兴, 韦勇宇, 张建红, 金 或(167)

短码直接序列扩频 CDMA 多用户盲同步

..... 解 辉, 程 呈, 张宏伟(171)

基于增强现实的装备诱导维修系统设计与实现

..... 崔 波, 王 岁, 瞿 珏, 李自豪(176)

基于认知无线电的无线传感网系统设计与实现

..... 杨 明(182)

飞机发动机关键系统智能故障诊断方法

..... 崔建国, 郑 蔚, 于明月, 蒲雪萍, 师建强(187)

多机动目标跟踪的 BFG-GMPHD 算法

..... 赵 斌, 胡建旺, 吉 兵(192)

武器装备效能评估指标体系分析与研究

..... 朱子薇, 侯 磊, 程思齐, 范东芳, 范宇浩(197)

下期要目(11)

本期责任编辑 王丽华, 王海云

[期刊基本参数] CN14-1138/TJ \* 1976 \* m \* A4 \* 200 \* zh \* P \* ¥20.00 \* 2 000 \* 44 \* 2016-11

# Fire Control & Command Control

Vol. 41 No. 11 Nov. 2016

## Contents

### SURVEY

- Overview on Waveform Design of Cognitive MIMO Radar ..... LAN Xing, LI Wei, JIANG Meng-ran, WANG Xing-liang, LI Xiao-ming(1)  
Review of Adaptive Design Problem of Army Organization ..... SUN Yu, YAO Pei-yang, SUN Peng, ZHANG Chao(6)

### THEORY RESEARCH

- Research of Dynamic Weapon-Target Assignment Problem Based on Epsilon-Nash Equilibrium ..... WANG Yi, SUN Jin-biao, HUA Yu-guang, WANG Ji-hui(12)  
A Combined Simulation Method of HF Network Based on ITS and OPNET ..... ZHOU De-min, LIU Yun-jiang, LI Man, BAI Xiang(16)  
Hypersonic Target Threat Assessment Based on Method of Variable Weight Grey Incidence ..... BA Hong-xin, WANG Jun, YANG Yan-jing(21)  
Research on Imaging System for Small Spin Target Based on Inverse Synthetic Aperture Imaging Lidar ..... LIU Zhi-chao, YANG Jin-hua(26)  
Method of Uncertain Temporal Reasoning Based on Intuitionistic Fuzzy Time Petri Net ..... REN Shen-he, ZHENG Kou-quan, LEI Ying-jie, WANG Rui(30)  
ISAR Range Imaging Method of High-Speed Targets Based on Chirp-Fourier Transform ..... LUO Wen-mao, CUI Ying-liu(36)  
A Improved Maneuvering Target Tracking Algorithm Based on Interacting Multiple Models ..... ZUO Xian-gang, WU Bian-xia, WANG Jian-ping, JIA Meng(41)  
An Euclidian Error Estimation Algorithm for Setting Intersection ..... WU Yi-chuan(45)  
The Recurrence Computing of Simplified Laplace Function on Account of the Continued Fraction Expansion ..... WANG Zhao-sheng(48)  
Research of Equipment Support Capability Assessment Index Selective Method ..... SHUAI Yong, SONG Tai-liang, WANG Jian-ping, SHEN Hong(51)  
Research on Evaluation Method of Falling into Possibility for Infrared Guided Antiaircraft Missile ..... YAO Zhi-min, WANG Qing-quan, GUO Xi-wei, ZHANG Xiao-long(56)  
Passive Location of Radar Based on Extended Kalman Filter ..... SUN Lin, LI Xiao-bo, ZHOU Qing-song, SHAN Liang(58)  
Combat Effectiveness Assessment of Ground-attack UCAV Based on Maximizing Deviation ..... WANG Chao, DONG Yan-fei, XU Guan-hua, QU Gao-min(62)  
Research on Collaborative Decision of Synthesis Unit Fire Distribution ..... KONG De-peng, XU Ke-hu, CHEN Jin-yu(66)  
SAR/GMTI Moving Target Detection Algorithm for Foliage Environment Based on Hough Transform ..... LI Shao-shu, CHEN Hua-jie, LIN Ping(70)  
Smart Assignment Scheme of Fraction Pilot Reuse for Massive MIMO ..... GUO Yao-ting, WANG Bing-he, QU Yi, Song De-peng(75)  
Research on Aircraft Swarms System Reconstruction Mechanism Based on Multi-Agent ..... HU Li-ping, LIANG Xiao-long, ZHANG Jia-qiang(80)  
Research on Technical Condition Evaluation of Ship Equipments Based on Index Fusion and Hidden Markov Model ..... NIU Jian-zhao, GENG Jun-bao, WEI Shu-huan, LIU Ling-gang(85)  
Air Threat Assessment Algorithm Based on Bayesian Networks ..... ZHAI Gui-min, DONG Long-ming, QIU Rui-bo, MA Lian-miao(90)  
A Collision Detection Algorithm Based on Spatial Partitioning and Hybrid Bounding Box ..... SONG Tao, SHU Tao, MEI Zhao, ZHANG Wei-dong(94)  
Research on Flight Path Fusion Method for Virtual Firing Test ..... GE Cheng-long, ZHU Yuan-chang, DI Yan-qiang, MENG Xian-guo(98)  
Novel Energy-Aware Clustering Algorithm for WSN with Redundant Nodes ..... ZHENG Ying, PEI Fang, DONG Long-ming(104)  
Networked-attack Target Tracking Based on IMM-RUASFF Algorithm ..... ZHAO Bin, YU Lei, ZHOU Zhong-liang, FU Zhao-wang, LIU Hong-qiang(108)  
Noise Reduction Method of Radar Echo Signal Based on Spatial Correlation Filtering ..... MA Qiang, LIU Yong(113)  
Prediction of Aviation Equipment Unsafe Events Based on Grey Catastrophe and Regression Analysis ..... LIU Jie, GAN Xu-sheng, WU Ya-rong, LI Hua-ping(117)  
A Method Based on Adaptive Simulated Annealing Genetic Algorithm ..... DUAN Jin-feng, XIE Shou-sheng, WANG Li-guo, YAO Kai-xiang, LIU Yun-zhe(121)  
An Improved Analysis Model of Electronic Intelligence ..... ZHANG Qiang, WANG Hong-wei, CHEN You, XU Yuan(124)  
Evaluation of Capability of New-type Equipment Based on Grey-AHP ..... HE Fan, LI Qi-xiang, HUANG Dong(129)  
Design and Implementation of Virtual Maintenance and Detecting System ..... LIU Ming, WANG Wei, QU Jue, BAI Ke-meng(134)  
Weapons Design and Efficiency Evaluation of Anti-riot Dispersing Vehicle ..... WANG Zhong-bei, GUO San-xue(139)  
**ENGINEERING PRACTICE**  
Maintaining Situation Consistency Among Distributed Platform ..... SHI Jiao-hua(144)  
Design of the Embedded Video Compression System for Video Data Rate Controlled Based on i.MX6 ..... WANG Jian, XIN Xiang-long, ZHANG Xiu-fei(148)  
Spare Parts Ergonomic Optimal Layout Design in Equipment Maintenance ..... GUO Lu, WANG Wei, YANG Yun, LIU Xiao-wei(153)  
Design of Microwave Landing Signal Simulator Based on GUI and Vector Signal Generator ..... FENG Xiang, ZHANG Bin(158)  
Measurement of Spectral Emissivity of Object Based on Infrared Radiometer ..... GUAN Wei, LIU Jian-mei, WANG QI, FU Li(163)  
Transfer Low Level Jamming Using Current-Voltage Characteristic of Diode ..... XUE Hong-ping, LI Ying-xing, WEI Yong-yu, ZHANG Jian-hong, JIN Yu(167)  
Blind Synchronization of Short-code DS-CDMA Signals in Multi-user System ..... XIE Hui, CHENG Cheng, ZHANG Hong-wei(171)  
Design and Implementation of Equipment Maintenance Guiding System Based on Augmented Reality ..... CUI Bo, WANG Wei, QU Jue, LI Zi-hao(176)  
Design and Implementation of Wireless Sensor Network System Based on Cognitive Radio ..... YANG Ming(182)  
Research on Intelligence Fault Diagnosis Methods of Aeroengine Key System ..... CUI Jian-guo, ZHENG Wei, YU Ming-yue, PU Xue-ping, SHI Jian-qiang(187)  
A BFG-GMPHD Algorithm for Multiple Maneuvering Targets ..... ZHAO Bin, HU Jian-wang, JI Bing(192)  
Study of Effectiveness Evaluation Index System of Weapon Equipment ..... ZHU Zi-wei, HOU Lei, CHENG Si-qi, FAN Dong-fang, FAN Yu-hao(197)