

基于演化网络模型的箱粒子 CPHD 群目标跟踪 .....  
..... 程 轩, 宋骊平, 姬红兵 961

基于进化粒子滤波的数据域直接跟踪方法 .....  
..... 遂志宇, 巴 斌, 任衍青, 王大鸣 968

基于稀疏恢复谱相似度的自适应样本筛选算法 .....  
..... 王晓明, 李 军, 张圣麟, 卢 燕, 张永杰 976

基于震荡权重粒子群杂交的过 2 采样 DFT 滤波器组优化设计 .....  
..... 程雨婷, 彭 勃, 魏玺章 982

锥面共形阵列非圆信号 2D-DOA 估计 .....  
..... 张 羚, 郭 英, 邹 峰, 齐子森 989

· 传感器与信号处理 ·

FDA-MIMO 雷达主瓣距离欺骗式干扰抑制方法 .....  
..... 兰 岚, 廖桂生, 许京伟, 张玉洪 997

对 SAR-GMTI 的大区域遮蔽有源-无源协同干扰方法 .....  
..... 周 阳, 毕太平, 沈爱国 1004

基于稀疏样本选优的机载雷达动目标检测算法 .....  
..... 龚清勇, 王成燕 1012

基于改进 MAP 方法的气象雷达风电场杂波抑制 .....  
..... 何炜琨, 高 丽, 王晓亮, 吴仁彪 1018

基于改进人工蜂群算法的 MIMO 雷达稀疏阵列优化 .....  
..... 庞育才, 刘 松 1026

基于 Q 学习的智能雷达对抗 ..... 邢 强, 贾 鑫, 朱卫纲 1031

· 系统工程 ·

云协同中作战资源两阶段虚拟化方法 ..... 孙海洋, 张 安, 高 飞 1036  
预警作战体系超网络建模及结构分析 .....  
..... 徐建国, 李孟军, 姜 江, 李明浩 1043

系统工程与电子技术

多个多弹头在轨武器平台的目标分配优化	刘庆国, 刘新学, 夏维, 郭会军	1050
基于 rollout 策略下的决策实体配置问题求解方法	廖梦琛, 孙鹏, 张杰勇, 武君胜	1057
基于着色时间 Petri 网的航班保障服务建模方法	邢志伟, 魏志强, 罗谦, 文涛, 丛婉, 夏欢	1064

精英遗传改进的非线性灰色神经网络算子与军费开支多目标组合预测应用	张侃, 刘宝平, 黄栋	1070
基于改进模糊熵的区间直觉模糊多属性决策	尹胜, 杨桢, 陈思翼	1079

### • 制导、导航与控制 •

带攻击角度约束的侵入与不变制导律	刘柏均, 侯明善, 余英	1085
基于矩阵分解的惯导安装误差矩阵解耦方法	吴华丽, 肖支才, 周大旺, 王玲玲	1091
两种 SINS 惯性系四元数粗对准算法等价性分析	陈河, 张志利, 周召发, 刘朋朋, 赵军阳	1098
基于 3D-APF 和约束动力学的无人机编队飞行控制	吴云华, 牛康, 李磊, 陈志明	1104
基于辅助匹配的 1 点 RANSAC 单目视觉导航算法	齐乃新, 张胜修, 曹立佳, 杨小冈	1109

### • 通信与网络 •

BOC 调制信号抗多径双环估计方法	李文刚, 王屹伟, 陈睿, 刘猛	1118
基于相关系数的两级盲频谱感知算法	包志强, 徐笑	1124
改进的 OFDM/OQAM 预编码信道估计方法	邱上飞, 薛伦生, 吴鹏	1129
LLN 中基于环路避免的高效路由修复算法	姚玉坤, 刘江兵, 李小勇, 任智	1135
复数域符号相乘的差分网络编码	李民政, 丁健, 苗春伟, 肖海林	1142

### • 软件、算法与仿真 •

基于自适应分割与偏移场估计的活动轮廓模型	蔡青, 刘慧英, 孙景峰, 周三平, 李靖	1148
连续搜索路径的最优化计算	陈建勇, 陈长康, 孙明军	1155
情报驱动的平行仿真实体动态生成方法	周芳, 楚威, 丁冉	1160
结冰条件下人机环复杂系统分布式仿真方法	李哲, 徐浩军, 薛源, 裴彬彬, 吕晗阳	1167

### • 可靠性 •

基于潜在缺陷暴露增益的可靠性试验设计规划模型	邵恒, 方志耕, 张秦, 刘思峰	1175
竞争失效下多冗退化建模的导弹贮存寿命评估	蔡忠义, 项华春, 王攀, 王泽洲, 李超	1183

## CONTENTS

### Electronic Technology

Box particle CPHD filter for group targets tracking based on evolution network model .....	CHENG Xuan, SONG Liping, JI Hongbing	961
Direct trajectory determination algorithm based on evolutionary particle filter .....	LU Zhiyu, BA Bin, REN Yanqing, WANG Daming	968
Adaptive sample selection algorithm based on sparse recovery spectral similarity .....	WANG Xiaoming, LI Jun, ZHANG Shengmiao, LU Yan, ZHANG Yongjie	976
Optimum design of 2-oversampling DFT filter bank based on shocking weight PSO hybridization .....	CHENG Yuting, PENG Bo, WEI Xizhang	982
2D-DOA estimation on conical conformal array antennas for non-circular signals .....	ZHANG Ling, GUO Ying, ZOU Feng, QI Zisen	989

### Sensors and Signal Processing

Main-beam range deceptive jamming suppression approach with FDA-MIMO radar .....	LA N Lan, LIAO Guisheng, XU Jingwei, ZHANG Yuhong	997
Coordinated large-area shading jamming method to SAR-GMTI combining active and passive jamming .....	ZHOU Yang, BI Daping, SHEN Aiguo	1004
Moving target detection algorithm based on sparse recovery and sample selection for airborne radar .....	GONG Qingyong, WANG Chengyan	1012
Wind farm clutters suppression for weather radar based on improved MAP method .....	HE Weikun, GAO Li, WANG Xiaoliang, WU Renbiao	1018
Optimization of MIMO radar sparse array based on modified artificial bee colony .....	PANG Yucai, LIU Song	1026

Intelligent radar countermeasure based on  $Q$ -learning ..... XING Qiang, JIA Xin, ZHU Weigang 1031

### Systems Engineering

Combat resource two-stage virtualization method in cloud cooperation .....	SUN Haiyang, ZHANG An, GAO Fei	1036
Supernetwork modeling and structure analyzing for warning combat system .....	XU Jianguo, LI Mengjun, JIANG Jiang, LI Minghao	1043
Target assignment optimization of multiple on-orbit weapon platforms with multiple warheads .....	LIU Qingguo, LIU Xinxue, XIA Wei, GUO Huijun	1050
Solving method for decision-makers configuration problems based on rollout strategy .....	LIAO Mengchen, SUN Peng, ZHANG Jieyong, WU Junsheng	1057
Flight support service process modeling method based on colored time Petri net .....	XING Zhiwei, WEI Zhiqiang, LUO Qian, WEN Tao, CONG Wan, XIA Huan	1064

Elite genetic improved nonlinear gray neural network operator and military expenditure multi-objective combination forecasting application .....	ZHANG Kan , LIU Baoping , HUA NG Dong	1070
Interval-valued intuitionistic fuzzy multiple attribute decision making based on the improved fuzzy entropy .....	YIN Sheng , YANG Zhen , CHEN Siyi	1079

## **Guidance , Navigation and Control**

Guidance law with impact angle constraints based on immersion and invariance .....	LIU Bojun , HOU Mingshan , YU Ying	1085
SINS installation error matrix decoupling method based on matrix decomposition .....	WU Huali , XIAO Zhicai , ZHOU Dawang , WANG Lingling	1091
Equivalence analysis between two quaternion based coarse alignment algorithms for SINS with inertial frame ...	CHEN He , ZHANG Zhili , ZHOU Zhaofa , LIU Pengpeng , ZHAO Junyang	1098
Formation flight control of UAV based on 3D-APF and constraint dynamics .....	WU Yunhua , NIU Kang , LI Lei , CHEN Zhiming	1104
Monocular visual navigation method with 1-point RANSAC based on aided matching .....	QI Naixin , ZHANG Shengxiu , CAO Lijia , YANG Xiaogang	1109

## **Communications and Networks**

Anti-multipath dual-estimate loop method for BOC modulated signals .....	LI Wengang , WANG Yiwei , CHEN Rui , LIU Meng	1118
Two level blind spectrum sensing algorithm based on correlation coefficient ...	BAO Zhiqiang , XU Xiao	1124
Improved precoding channel estimation method for OFDM /OQAM system .....	QIU Shangfei , XUE Lunsheng , WU Peng	1129
Highly-efficient routing repair algorithm based on loop-free for LLN .....	YAO Yukun , LIU Jiangbing , LI Xiaoyong , REN Zhi	1135
Differential network coding with symbol multiplying in complex field .....	LI Minzheng , DING Jian , MIAO Chunwei , XIAO Hailin	1142

## **Software , Algorithm and Simulation**

Active contour model based on adaptive segmentation and bias field estimation .....	CAI Qing , LIU Huiying , SUN Jingfeng , ZHOU Sanping , LI Jing	1148
Optimization calculation of continuous search path .....	CHEN Jianyong , CHEN Changkang , SUN Mingjun	1155
Intelligence driven dynamic generation method for parallel simulation entity .....	ZHOU Fang , CHU Wei , DING Ran	1160
Distributed simulation method for man-machine-environment complex system under icing condition .....	LI Zhe , XU Haojun , XUE Yuan , PEI Binbin , LU Hanyang	1167

## **Reliability**

Reliability test design planning model based on potential defect exposure gain .....	SHAO Heng , FANG Zhigeng , ZHANG Qin , LIU Sifeng	1175
Missile storage lifetime assessment of multivariate degradation modeling under competition failure .....	CAI Zhongyi , XIANG Huachun , WANG Pan , WANG Zezhou , LI Chao	1183