



通信学报

第 41 卷第 11 期 2020 年 11 月

目次

专题：面向 6G 的智能无线通信关键技术

- Challenges for beyond 5G: ultra-densification of radio access network.....
.....Fumiyuki Adachi, Ryo Takahashi, Hidenori Matsuo [2020240](1)
基于轻量级深度神经网络的电磁信号调制识别技术..... 张思成, 林云, 涂涯, Shuwen Mao [2020237](12)
无人机无线网络覆盖与切换性能分析..... 尹博南, 彭木根, 刘晨熙 [2020236](22)

学术论文

- 超声波透金属通信中子载波快速筛选比特填充算法.....许琳森, 杨维, 田洪现, 吴韬 [2020228](30)
Ceph 云存储网络中一种业务优先级区分的多播流调度方法.....柯文龙, 王勇, 叶苗, 陈俊奇 [2020233](40)
基于移动边缘计算的时延能耗最小化安全传输.....任品毅, 许茜 [2020219](52)
基于 D2D 多播通信的合作内容下载机制.....杨莲新, 吴丹, 袁峰, 乐超, 富勤学 [2020221](64)
基于蚁群算法的骨干网络发现.....吕芳, 柏军, 黄俊恒, 王佰玲 [2020207](74)
面向智能共享的内生可信网络体系架构.....郭少勇, 齐莞苑, 代美玲, 邱雪松, 亓峰, 张平 [2020193](86)
车载异构网络中基于前向时延的多径传输路径调度优化.....赵海涛, 陈跃, 张唐伟, 朱奇星, 朱洪波 [2020162](99)
双 Johnson S_B 分布湍流扰动 OAM 光通信接收信号生成研究.....
.....陈纯毅, 熊琴琴, 于海洋, 姚海峰, 宋佳雪, 娄岩[2020183](108)
改进的双曲正切函数的变步长 LMS 算法.....章坚武, 余皓, 章谦骅[2020224](116)
面向大规模时间敏感网络的分组调度机制.....邱雪松, 黄徐川, 李文萃, 李温静, 郭少勇[2020203](124)
基于 CNN 的双边融合算法在高光谱图像分类中的应用.....高红民, 曹雪莹, 杨耀, 花再军, 李臣明[2020238](132)
新型机会式 NOMA 协作多播方案.....陆音, 陈继荣, 卞皓伟, 朱洪波[2020239](141)
基于附链的容迟网络区块链贸易机制.....瞿玲玲, 丛鑫[2020234](151)
可变融合的随机注意力胶囊网络入侵检测模型.....张兴兰, 尹晟霖[2020220](160)
 $4t-1$ 元旋转对称 2-弹性函数的构造.....杜蛟, 刘春红, 庞善起[2020213](169)

学术通信

- 面向差异化 MTC 场景需求的随机接入方案.....吴哲夫, 杨鑫源, 翟文超, 韩会梅[2020222](176)
OAM 光通信路由器件研究.....郭忠义, 潘珍珍, 龚超凡, 王子坤, 郭凯, 周红平[2020184](185)
结合子空间旋转技术的非圆信号快速 DOA 估计.....王薇, 张明, 姚博彬, 殷勤业, 穆鹏程[2020208](198)

Contents

Topics: Key Technologies of Intelligent Wireless Communication for 6G

Challenges for beyond 5G: ultra-densification of radio access network	<i>Fumiyuki Adachi, Ryo Takahashi, Hidenori Matsuo</i> [2020240](1)
Electromagnetic signal modulation recognition technology based on lightweight deep neural network	<i>ZHANG Sicheng, LIN Yun, TU Ya, Shiwen Mao</i> [2020237](12)
Analysis of UAV wireless network coverage and handover performance	<i>YIN Bonan, PENG Mugen, LIU Chenxi</i> [2020236](22)

Papers

Bit-filling algorithm for fast subcarrier-selecting in ultrasonic through-metal communication	<i>XU Linsen, YANG Wei, TIAN Hongxian, WU Tao</i> [2020228](30)
Priority differentiated multicast flow scheduling method in Ceph cloud storage network	<i>KE Wenlong, WANG Yong, YE Miao, CHEN Junqi</i> [2020233](40)
Delay and energy minimization for MEC-based secure communication	<i>REN Pinyi, XU Qian</i> [2020219](52)
Cooperative content downloading scheme based on D2D multicast communications	<i>YANG Lianxin, WU Dan, YUAN Feng, YUE Chao, FU Qinxue</i> [2020221](64)
Discovering the backbone network with a novel designed ant colony algorithm	<i>LYU Fang, BAI Jun, HUANG Junheng, WANG Bailing</i> [2020207](74)
Endogenous trusted network architecture for intelligent sharing	<i>GUO Shaoyong, QI Yuanyuan, DAI Meiling, QIU Xuesong, QI Feng, ZHANG Ping</i> [2020193](86)
Optimization of multipath transmission path scheduling based on forward delay in vehicular heterogeneous network	<i>ZHAO Haitao, CHEN Yue, ZHANG Tangwei, ZHU Qixing, ZHU Hongbo</i> [2020162](99)
Study on generation of turbulence-distorted received signals in OAM optical communications obeying dual Johnson S_B distribution	<i>CHEN Chunyi, XIONG Qinqin, YU Haiyang, YAO Haifeng, SONG Jiaxue, LOU Yan</i> [2020183](108)
Improved variable step-size LMS algorithm based on hyperbolic tangent function	<i>ZHANG Jianwu, YU Hao, ZHANG Qianhua</i> [2020224](116)
Group-scheduling mechanism for large-scale time-sensitive network	<i>QIU Xuesong, HUANG Xuchuan, LI Wencui, LI Wenjing, GUO Shaoyong</i> [2020203](124)
Application of bilateral fusion model based on CNN in hyperspectral image classification	<i>GAO Hongmin, CAO Xueying, YANG Yao, HUA Zaijun, LI Chenming</i> [2020238](132)
Novel opportunistic cooperative multicast scheme for NOMA	<i>LU Yin, CHEN Jirong, BIAN Haowei, ZHU Hongbo</i> [2020239](141)
Blockchain trading mechanism based on attached chain for the delay tolerant network	<i>ZI Lingling, CONG Xin</i> [2020234](151)
Intrusion detection model of random attention capsule network based on variable fusion	<i>ZHANG Xinglan, YIN Shenglin</i> [2020220](160)
Constructions of rotation symmetric 2-resilient functions with $4t-1$ number of variables	<i>DU Jiao, LIU Chunhong, PANG Shanqi</i> [2020213](169)

Correspondences

Random access scheme for different MTC scenario requirement	<i>WU Zhefu, YANG Xinyuan, ZHAI Wenchao, HAN Huimei</i> [2020222](176)
Research on router device of OAM optical communication	<i>GUO Zhongyi, PAN Zhenzhen, GONG Chaofan, WANG Zikun, GUO Kai, ZHOU Hongping</i> [2020184](185)
Computationally efficient direction-of-arrival estimation of non-circular signal based on subspace rotation technique	<i>WANG Wei, ZHANG Ming, YAO Bobin, YIN Qinye, MU Pengcheng</i> [2020208](198)