

论文

基于两跳载波配对策略的非再生OFDM中继系统性能优化

吴彤^① 王莹^{①②} 束超^① 张平^{①②}

^①(北京邮电大学无线新技术研究所 北京 100876)

^②(北京邮电大学泛网无线通信教育部重点实验室 北京 100876)

收稿日期 2007-5-15 修回日期 2007-9-27 网络版发布日期 接受日期

摘要

该文针对非再生中继方式,分析了基于正交频分复用(OFDM)的两跳中继系统的容量,并推广到发送端具有两根天线采用空时块码(STBC)的情形。以最大化端到端的信息速率为优化准则,提出了非再生两跳载波配对定理,并结合注水定理分别在频域、空域,以及空频二维进行了资源联合优化。仿真结果表明,资源联合优化与传统的平均资源分配相比,显著提高系统容量,且STBC-OFDM能获得更高性能增益。通过子载波配对方案能进一步增强系统性能。

关键词 [正交频分复用; 非再生中继; 两跳载波配对; 联合优化](#)

分类号 [TN929.5](#)

The Performance Optimization for Non-regenerative OFDM Relaying System Based on Two-hop Subcarrier Pairing Strategy

Wu Tong^① Wang Ying^{①②} Shu Chao^① Zhang Ping^{①②}

^①(Wireless Technology Innovation Institutes, Beijing University of Posts and Telecommunications, Beijing 100876, China)

^②(Key Laboratory of Ubiquitous Wireless Communication, Ministry of Education, Beijing University of Posts and Telecommunications, Beijing 100876, China)

Abstract

Based on the non-regenerative relaying mode, the capacity of the two-hop relaying system is analyzed based on Orthogonal Frequency Division Multiplex (OFDM), and the analysis is extended to the scenario with two antennas in transmitter using Space Time Block Coding (STBC). Taking the maximum end-to-end data rate as the optimization criterion, the two-hop subcarrier pairing theorem is proposed, and the joint optimization is investigated across frequency domain, space domain as well as space-frequency planar domain respectively combined with the water-filling theory. The simulation results show that the proposed joint optimization scheme can improve the system capacity obviously compared with the uniform resource allocation scheme, and STBC-OFDM scheme can achieve performance gain. The proposed two-hop subcarrier pairing strategy can enhance the system performance further.

Key words [OFDM](#) [Non-regenerative relaying](#) [Two-hop subcarrier pairing](#) [Joint optimization](#)

DOI:

通讯作者 吴彤

作者个人主页 [吴彤^① 王莹^{①②} 束超^① 张平^{①②}](#)

扩展功能
本文信息
▶ Supporting info
▶ PDF (259KB)
▶ [HTML全文](OKB)
▶ 参考文献[PDF]
▶ 参考文献
服务与反馈
▶ 把本文推荐给朋友
▶ 加入我的书架
▶ 加入引用管理器
▶ 复制索引
▶ Email Alert
▶ 文章反馈
▶ 浏览反馈信息
相关信息
▶ 本刊中包含“正交频分复用; 非再生中继; 两跳载波配对; 联合优化”的相关文章
▶ 本文作者相关文章
• 吴彤 王莹 束超 张平