

本期目录 | 下期目录 | 过刊浏览 | 高级检索  
页] [关闭]

[打印本

## 短文与研究通讯

### 功率约束条件不同时下行相干CoMP传输异构网的性能

凌为, 韩圣千, 杨晨阳

北京航空航天大学电子信息工程学院

摘要:

本文研究在异构网中进行相干协作多点传输时低复杂度迫零 (ZF) 预编码的性能。我们考虑在同构网中常用的低复杂度ZF预编码结构, 即先进行ZF波束形成再进行功率分配, 分析在采用和功率约束及单基站功率约束下使和数据率最大的功率分配时协作传输的性能, 并与实际系统中常用的等功率分配的性能进行比较。分析结果表明, 在异构网多载波系统中进行下行相干协作传输时, 与在同构网中的结果不同, 协作传输后单基站功率约束的性能远优于其他功率约束下的性能。但是, 当协作的宏基站与微基站最大功率差别较大时, 宏用户的性能在协作后甚至不如不进行协作传输, 而微用户的性能会有所提高。这意味着在异构网中设计协作预编码时必须考虑单基站功率约束, 而且不能只对功率分配进行优化设计。

关键词: 异构网 协作多点传输 单基站功率约束

### Performance of downlink CoMP transmission with different power constraints in Heterogeneous Network

LING Wei, HAN Sheng-Qian, YANG Chen-Yang

School of Electronics and Information Engineering, Beihang University

Abstract:

In this paper, the performance of low complexity zero-forcing (ZF) precoder in coordinated multipoint (CoMP) transmission for heterogeneous networks is investigated. We consider the low complexity precoder structure often applied in homogeneous networks, which is decoupled into a ZF beamformer followed by power allocation. The performance of cooperative transmission with sum power constraint and per base-station (BS) power constraint is analyzed, where the power allocation is to maximize the sum rate. The performance is compared to that of equal power allocation, which is usually used in practical systems. It is shown that the downlink cooperative transmission in multi-carrier heterogeneous networks is quite different from that in homogeneous networks. The performance of CoMP with per BS power constraint is much better than those with other power constraints. However, when the maximal power of the cooperative macro BS and that of micro BS are quite different, the performance of macro users with CoMP is even inferior to that without coordination, while the performance of micro users is improved as expected. This implies that when designing the cooperative precoder in heterogeneous networks we must consider the per BS power constraint, and we should not only optimize the power allocation with a given ZF beamformer.

Keywords: Heterogeneous network coordinated multipoint(CoMP); per base-station power constraint

收稿日期 2011-06-01 修回日期 2011-10-18 网络版发布日期 2011-10-25

DOI:

基金项目:

新一代宽带无线移动通信网科技重大专项 (2011ZX03003-001)

通讯作者:

## 扩展功能

### 本文信息

- Supporting info
- PDF(2456KB)
- [HTML全文]
- 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
- 引用本文
- Email Alert
- 文章反馈
- 浏览反馈信息

### 本文关键词相关文章

- 异构网
- 协作多点传输
- 单基站功率约束

### 本文作者相关文章

- 凌为
- 韩圣千
- 杨晨阳

### PubMed

- Article by Ling, W.
- Article by Han, K. Q.
- Article by Yang, C. Y.

作者简介:

作者Email: lingfengerqi@yahoo.com.cn

---

参考文献:

本刊中的类似文章

1. 王存祥, 邱玲. 协作多点传输中一种基于特征子信道的干扰对齐预编码矩阵优化方案[J]. 信号处理, 2011, 27(3): 395-399
2. 田亚飞, 张千, 杨晨阳. 上行中心式协作多点传输基站处理算法研究[J]. 信号处理, 2011, 27(3): 400-406