

论文

一种基于计费的WCDMA功率控制方法

魏蛟龙,张驰,陈恒

华中科技大学电子与信息工程系,武汉,430074

收稿日期 2002-4-2 修回日期 2002-9-30 网络版发布日期 2008-7-7 接受日期

摘要

在第三代移动通信系统中,为了有效地提高系统容量和通信质量,需要对无线资源如发射功率作合理的动态分配。该文通过研究 WCDMA系统中上行链路的干扰情况,推导得出 WCDMA系统的容量与业务性能指标的关系。通过定义网络资源份额,将功率控制问题转换为总量小于1的网络资源份额的分配问题。然后利用统一价格拍卖对网络资源份额进行最优配置,使得发射功率这一重要无线资源合理地分配给对其评价最高的用户业务。最后给出了上述算法的数值仿真。

关键词 [宽带码分多址](#) [无线资源分配](#) [功率控制](#) [计费](#) [网络资源份额](#)

分类号 [TN914.4](#)

Efficient power control via pricing in wcdma systems

Wei Jiaolong, Zhang Chi, Chen Heng

Dept. of Electron and Info.,Huazhong Univ. of Sci. and Tech.,Wuhan 430074 China

Abstract

The transmit power is a major radio resource and requires careful planning and control if optimal system performance and maximal user capacity are to be achieved. In this paper, a new power control algorithm based on pricing is proposed in the context of third generation multimedia multirate Wideband CDMA (WCDMA) mobile communications. Firstly, the paper defines the multiplication of user's data rate and minimum required SIR as user's demand of network resource, and then derives the relationship between system capacity, transmit power and normalized demand called network resource share. By introducing uniform-price auction, the paper uses pricing to maximize the social benefit by making efficient allocations of transmit power, when demand exceeds supply which leads to congestion. In the end, numerical results are presented to validate the analytical results and the proposed power control algorithm.

Key words [WCDMA](#) [Radio resource allocation](#) [Power control](#) [Pricing](#) [Network resource share](#)

DOI:

通讯作者

作者个人主页 [魏蛟龙;张驰;陈恒](#)

扩展功能

本文信息

- ▶ [Supporting info](#)
- ▶ [PDF\(264KB\)](#)
- ▶ [\[HTML全文\]\(OKB\)](#)
- ▶ [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“宽带码分多址”的相关文章](#)
- ▶ 本文作者相关文章

- [魏蛟龙](#)
- [张驰](#)
- [陈恒](#)