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OFDMA Femtocell网络中混合接入方式下的资源分配策略

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Resource Allocation in Hybrid Access OFDMA Femtocell Networks

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摘要 Femtocell(飞小区)能够有效加强室内覆盖和系统容量。混合接入(hybrid access)方式可以兼顾授权用户和非授权用户的业务体验。针对下行混合接入方式下的正交频分复用接入(OFDMA) Femtocell网络，该文提出带权重的比例公平(WPF)调度算法，为不同类型的用户提供不同的调度权重。该文提出两种算法确定用户的调度权重，一种是自适应权重的比例公平算法，实时调整调度权重；另一种是静态权重的比例公平算法，基于WPF调度的渐近性分析得到静态最优调度权重。仿真结果表明该文提出的两种算法均能在授权用户和非授权用户间合理分配资源，保证不同用户的速率需求。

关键词： OFDMA　飞小区　混合接入方式　资源分配　带权重的比例公平算法

Abstract： Femtocells are a promising solution to enhance indoor coverage and system capacity. Hybrid access methods reach a compromise between the performance of subscribers and non-subscribers. In this paper, a Weighted Proportional Fair (WPF) algorithm is proposed, in which different users with different weights, for the downlink hybrid access OFDMA femtocell networks. Besides, two algorithms are developed to obtain the user scheduling weight. The one is that adaptively change the scheduling weight, the other is based on the asymptotic analysis of WPF algorithm. Simulation results show that the two scheduling algorithms in the hybrid access femtocells could reasonably allocate the resource between the subscribers and non-subscribers and ensure the rate requirements of different users.

Keywords： OFDMA　Femtocell　Hybrid access　Resource allocation　Weighted Proportional Fair (WPF)

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