算法研究

中继网络中减少反馈的多用户调度算法

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摘要：

针对多用户中继网络中上行反馈负荷过大的问题，本文提出了一种减少信道状态信息反馈的半分布式调度算法（RRFD）。基于反馈中断概率及总用户数，基站与中继分别设置信道状态反馈门限。每一调度周期内，通过与门限的比较，用户决定是否反馈相应链路信息,基站根据用户反馈情况决定系统采用何种传输模式。文中还对AF协议下采用该算法时的反馈用户数及平均可达速率等性能指标进行了理论推导。仿真结果表明，系统性能与数学推导相一致，与此同时，本文提出的算法可极大程度（90%以上）的减少系统反馈量，并显著降低了系统反馈中断概率，减小了容量损失。

关键词： 中继网络　资源调度　减少反馈　信道状态信息

Multiuser Scheduling Based on Reduced Feedback Information in Relay Networks

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Abstract:

This paper proposes a semi-distributed scheduling algorithm to decrease the feedback of Channel State Information. According to the probability of feedback interruption and total number of users, the threshold of channel state information feedback is set up respectively at base station and relay. In every slot, through the comparison with the threshold, users decide whether to feedback the corresponding link information about the signal to noise ratio. The base station, according to the feedback from users, decide which transmission modes will be selected. In addition, this paper gives detailed theoretical derivation on performance index of the proposed algorithm, such as the number of feedback users and the average achievable rates etc. Moreover, under the AF protocol, the fianl result shows the performance of system by using this scheme is corresponding to mathematical derivation. Furthermore, the proposed algorithm could greatly reduce (over 90%) the quantity of feedback information in the system.

Keywords: relay network　resource scheduling　reduce feedback　channel state information

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