

短文与研究通讯

改进的下行MIMO随机波束赋形算法

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摘要:

现有多输入多输出(MIMO)技术中,用户通常选择采用随机波束赋形(RBF)方法,而在用户数较少时,RBF会因为用户信道与发送信道不能准确匹配而使系统吞吐量下降。本文提出了一种改进的随机波束赋形用户选择策略。首先,中心基站发送信道检测信号,然后在用户端进行信道检测与匹配,按照本文提出的矫正算法反馈信道信息,最后基站根据信道反馈信息向用户发送数据。用户选择的判断标准不再是用户信道和随机发射波束的匹配,而改为用户信道校正后的等效信道与随机发射波束的匹配,这样减少了通信中天线间信号干扰,系统性能得到改善。仿真结果表明:与现有的MIMO用户选择策略相比,本文提出的方法在不明显增加运算复杂度的前提下,提高了发送波束与传输信道的匹配,系统吞吐量得到了提高。

关键词: 多输入多输出系统; 随机波束形; 用户选择; 接收矫正

An improved random beam-forming algorithm for downlink MIMO systems

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Abstract:

In existing MIMO technology, user selection is usually achieved by method of RBF, but the system throughput decreases due to the mismatch of between user channel and transmit channel when the number user is small. This paper proposes an improved user selection based on RBF. Firstly, channel detection signal is emitted by the central base station, then channel detection and match is operated by user, finally base station transmit data to users according channel feedback information which is obtained by the proposed reception correction algorithm. The criteria selected by the user is no longer the matching of a user channel and random transmit beam, while the equivalent channel changed to the user channel correction and random transmit beam, which reduces signal interference between the communications antenna. Simulation result shows the proposed algorithm improves channel match and the system capacity without increasing the complexity.

Keywords: ultiple-Input Multiple-Output system random beamforming user selection reception correction

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