

论文

Turbo-BLAST系统中基于容量的天线选择和功率分配算法

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摘要:

在不完全信道状态信息条件下, 提出了一种适用于Turbo BLAST系统的天线选择和功率分配算法。所提算法以信道容量最大化为准则, 从所有天线中选取一组天线子集用于发射, 并对选择的天线子集进行注水功率分配, 以充分利用Turbo BLAST系统的空间复用增益并提高信道容量。在接收端, 采用Turbo原理对接收信号进行迭代检测以改善系统的误比特率性能。仿真结果表明采用所提算法不仅可以显著提高系统的信道容量, 而且误比特率性能也得到明显的改善。

关键词: Turbo-BLAST; 不完全信道状态信息; 天线选择; 注水功率分配; 迭代检测

Antenna Selection and Power Allocation Algorithm Based on Maximum Capacity for Turbo BLAST System

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Abstract:

Antenna selection and power allocation algorithm which aimed at maximizing channel capacity is presented for Turbo BLAST system in the presence of imperfect channel state information. At the transmitter, the transmit antenna subset is selected for data transmission based on the maximization of the channel capacity. Meanwhile, the water filling power allocation is used for the selected antenna subset so that the spatial multiplexing gains of Turbo BLAST system are fully utilized to improve the channel capacity. At the receiver, turbo iterative idea is employed for signals detection to improve the bit error rate (BER) performance further. Simulation results show that the proposed algorithm improves not only the channel capacity but also the BER performance.

Keywords: Turbo-BLAST Imperfect Channel State Information Antenna Selection; Water filling Power Allocation Iterative Detection

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