论文

下行多用户MIMO-OFDMA／SDMA系统动态资源分配

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摘要
该文对下行多用户MIMO-OFDMA/SDMA系统动态资源分配算法进行了研究，在满足各种约束条件的前提下，以最大化系统吞吐量为目标建立了相应的优化模型。由于最优解难以获得，将整个优化过程分两步完成，第1步定义了一个用于度量配置多根天线的用户空间兼容性的指标，并根据该指标提出了相应的调度算法；第2步提出了两种次优的资源分配算法。仿真结果表明，所提算法优于传统的随机调度算法，与"功率复用"策略结合时，所提算法的性能接近于基于用户选择的最优分配算法的性能。

关键词   多输入多输出；正交频分多址；空分多址；动态资源分配；下行多用户系统

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Dynamic Resource Allocation for Downlink Multiuser MIMO-OFDMA/SDMA Systems

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Abstract
Dynamic resource allocation algorithms are investigated for downlink multiuser Multiple Input Multiple Output Orthogonal Frequency Division Multiple Access and Space Division Multiple Access (MIMO-OFDMA/SDMA) systems. Firstly, a mathematical formulation is provided with the goal of maximizing throughput under various constraints. Secondly, since the optimal solution is difficult to obtain, the optimization procedure is divided into two steps. In the first step, a metric is derived to measure the spatial compatibility of users with multiple antennas, and then a scheduling algorithm is developed based on the proposed metric. In the second step, two suboptimal algorithms are developed to assign resources for the scheduled users. Simulation results demonstrate that proposed algorithms outperform random scheduling scheme. When combined with power reuse strategy, proposed algorithms obtain performances close to the optimal scheme based on user selection.

Key words   MIMO   OFDMA   SDMA   Dynamic Resource Allocation (DRA)   Downlink multiuser system

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