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研究论文

MIMO-OFDMA系统中的一种新的初始测距方法

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摘要：

针对多输入多输出正交频分多址接入系统中基站多天线的特点，提出了一种利用波束成形的测距新方案. 该方案首先利用基站多个接收天线上的接收信号矢量来计算用户测距码的波束成形矢量，再利用该矢量合并各天线的接收信号，抑制用户间的干扰，获得高质量的测距信号，来检测用户并估计用户的参数. 计算机仿真结果表明，该方案有效降低了多用户接入系统时的漏检概率和虚警概率，参数估计的性能优于目前文献中的已有算法.

关键词： 多输入多输出正交频分多址接入 初始测距 波束成形

Novel initial ranging method in the MIMO-OFDMA system

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Abstract:

According to the feature of multiple antennas at the base station in the MIMO-OFDMA system, a novel initial ranging (IR) method exploiting the beamforming technique is proposed. The beamforming vector of the ranging signal is obtained by searching from the received signal vector of the multiple antennas. The signals received by multiple antennas are combined by the beamforming vector, and the inter-user interference is suppressed. The combined signals are used in the multiuser detection and timing offsets estimation in the initial ranging. Simulation results show that the miss detection probability and false alarm probability of the multiuser detection by the proposed method are efficiently reduced, and that the performance of parameter estimation by the proposed method is better than that by the available methods.

Keywords: MIMO-OFDMA initial ranging beamforming

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