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基于可调制正交多相序列的MIMO OFDM时域信道估计

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摘要 提出了一种基于时域训练序列的MIMO OFDM信道估计算法．该训练序列采用可调制正交多相序列，其自相关性完全理想，不同序列之间的互相关函数的绝对值是一个常数并且满足数学低门限;信道估计器采用接收训练序列和本地训练序列的时域相关，利用可调制正交多相序列的正交性分离多信道，利用训练序列理想的自相关性得到精确的信道信息．与现有多天线信道估计相比，本算法具有实现简单和可跟踪时变信道的优点，计算机仿真结果表明即使在低信噪比情况下也能获得良好的误码率性能．

关键词 多输入多输出（MIMO） 正交频分复用（OFDM） 信道估计 可调制正交多相序列

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Channel estimation for the wireless MIMO OFDM system based on modulatable orthogonal polyphase sequences

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Abstract

Channel estimation based on training sequences in the time domain for wireless MIMO OFDM is proposed. The training sequences are modulatable orthogonal polyphase sequences. The time domain periodic autocorrelation of the sequence emanated from all the transmit antennas is completely ideal. The absolute value of the cross-correlation function between any two modulatabale sequences is constant and satisfies the mathematical lower bound. The multi-channel estimator relies on correlation between the received training sequences and the locally generated training sequences. The advantages of the proposed method, over existing alternatives, are low complexity and the ability to track the time-varying channel. Simulation results show satisfactory performance even at a low SNR.

Key words orthogonal frequency division multiplexing (OFDM) multiple-input multiple-output (MIMO) channel estimation modulatable orthogonal polyphase sequences

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