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论文

基于半定松弛方法的时变OFDM系统盲信道估计

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摘要
该文提出了一种时变正交频分复用(OFDM)系统信道盲估计算法。在二次规范(Quadratic Program, QP)模型的基础上，采用半定松弛技术，把OFDM信道盲估计转换为一个可以在多项式时间内求解的半定规划问题。为了进一步降低半定规划问题的转换复杂度，考虑到OFDM各个子载波和各个时刻的响应之间的紧相关性，该文提出了一种新的随机转换策略，仿真表明，该文所提出的算法，其误码率逼近最佳估计，且复杂度大幅降低。

关键词 正交频分复用 信道盲估计 半定松弛 相关性 随机转换

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SDR-Based Blind Channel Estimation of Time-varying OFDM Systems

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Abstract
Some Quadratic Programs (QP) have been presented for the blind channel estimation and signal detection of the time-varying OFDM systems. In this paper a method is proposed to turn the QP problem into the optimization of a Semi-Definite Program (SDP) based on the Semi-Definite Relaxation (SDR) technique. Compared to the original QPs which reach the optimal solution with exponential complexity, the SDP could be solved efficiently in polynomial time. In order to reduce the complexity involved in the transform from the solution of the SDPs to the solution of the original QPs, the correlation property of the OFDM time-frequency response between adjacent subchannels or time-slots is exploited to devise a novel randomization strategy. The simulation proves the effectiveness of the new method.

Key words OFDM Blind channel estimation Semi-Definite Relaxation (SDR) Correlation Randomization

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