博士论坛

合作SCC系统的总LS信号检测方法

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摘要　为了克服已有信道估计算法无法及时跟踪信道变化的缺陷，在合作OFDM系统中引入了总LS（Total Least Squares，TLS）信号检测方法来实现信道状态信息估计。TLS方法同时考虑了信道噪声和信道时变特性，能够对信道和信号的变化同时进行跟踪估计。因为充分考虑了信道的时变性，且复杂度较低、收敛速度较快，所以在高速移动通信环境下，TLS方法能够很好地估计信道信息。仿真结果表明，与传统的LS法和ML法相比，该算法在改善误码性能方面优势明显。

关键词　正交频分复用　合作通信　信道状态控制　总最小二乘　信道状态信息

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Total Least Squares signal detection for cooperation SCC system

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Abstract

  When the environment is under high-speed，there will be a large Doppler because of time-vary channel.So，Channel State Information（CSI） must be estimated at any time.Aiming at this problem，the total least squares is introduced to estimate CSI.Considering channel noise and the character of time-varying of channel，this algorithm can estimate not only received signal but also channel state.At the same time，it can track them，too.In time-varying channel，TLS method has the advantages of lower complexity and fast convergence.Compared with LS and ML algorithms，TLS has better BER performance.The simulation results show that TLS method is effective in channel estimate in wireless communication system.

Key words　Orthogonal Frequency Division Multiplexing（OFDM）　cooperation communication　Spatial Channel Control（SCC）　Total Least Squares（TLS）　Channel State Information（SCI）

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