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论文

改进收敛性能的矢量恒模MIMO-OFDM盲均衡器

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摘要
在MIMO-OFDM系统中利用矢量恒模准则与用户间解相关准则相结合，可以在相位模糊度意义下同时恢复出发送端多个用户传输的数据。然而由于在迭代过程中使用了复杂度较低的LMS算法，迭代过程的收敛速度与稳态均方误差形成了一对矛盾。该文提出了一种变步长的迭代方法，能够同时在收敛速度和稳态均方误差上得到较好性能，同时文中还分析了信道噪声对横向滤波器抽头系数更新的影响，进而在抽头系数更新过程中将噪声予以消除，进一步提高了盲均衡器的收敛性能。

关键词 MIMO-OFDM 盲均衡器 矢量恒模算法 用户间解相关 变步长LMS

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VCMA Blind Equalizer with Improved Convergence Performance for MIMO-OFDM Systems

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Abstract
In MIMO-OFDM systems, data streams of multiple users can be simultaneously recovered up to a phase ambiguity when a VCMA criterion combined with a user decorrelation criterion is considered. Since a low complexity LMS algorithm is used in the iteration, the convergence speed and the steady state MSE performance become a contradiction. In this paper, a variable step size iteration method is proposed which has good performance in both convergence speed and steady state MSE. Moreover, the impact of channel noise on the tap refreshing process of the transverse filters is analyzed, and a simple method to remove the effect of noise is induced. As a result the convergence performance of the blind equalizer is further improved.

Key words MIMO-OFDM Blind equalizer VCMA User decorrelation Variable step size LMS

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