

V-BLAST OFDM系统中一种稳健的检测算法

战金龙, 刘宏清, 廖桂生

(西安电子科技大学 雷达信号处理重点实验室, 陕西 西安 710071)

收稿日期 修回日期 网络版发布日期 2007-9-29 接受日期

摘要 针对实际中信道估计存在误差, 从阵列信号处理的角度提出了V-BLAST(Vertical Bell Labs Layered Space-Time) OFDM系统中一种稳健的检测算法. 将接收数据的协方差矩阵进行特征值分解, 得到信号子空间, 将存在估计误差的信道矢量向该子空间投影, 就可以得到较为准确的信道矢量, 然后利用波束形成计算出检测滤波器的系数. 仿真结果表明, 当信道估计存在误差时, 该方法性能显著优于ZF(Zero-Forcing)和MMSE(Minimum Mean Square Error)算法.

关键词 [贝尔实验室垂直分层码](#) [正交频分复用](#) [信道估计误差](#) [稳健性](#)

分类号 [TN911](#) [TN92](#)

A robust detection algorithm for V-BLAST OFDM systems

ZHAN Jin-long, LIU Hong-qing, LIAO Gui-sheng

(Key Lab. of Radar Signal Processing, Xidian Univ., Xi'an 710071, China)

Abstract

A robust detection algorithm based on the array signal processing theory is proposed for V-BLAST(Vertical Bell Labs Layered Space-Time) OFDM systems with a channel estimation error. The covariance matrix of receive data is eigendecomposed, and the signal subspace is obtained. Then the channel vector (with error) is projected onto the subspace, and more accurate channel vector is obtained. According to the beamforming algorithm, the detection filter coefficients are calculated. Simulation results show that the performance of the proposed algorithm is much better than ZF(Zero-Forcing) and MMSE(Minimum Mean Square Error) algorithms.

Key words [Vertical Bell Labs Layered Space-Time\(V-BLAST\)](#) [Orthogonal Frequency Division Multiplexing\(OFDM\)](#) [channel estimation error](#) [robustness](#)

DOI:

通讯作者

扩展功能

本文信息

- ▶ [Supporting info](#)
- ▶ [PDF\(641KB\)](#)
- ▶ [\[HTML全文\]\(0KB\)](#)
- ▶ [参考文献](#)

服务与反馈

- ▶ [把本文推荐给朋友](#)
- ▶ [加入我的书架](#)
- ▶ [加入引用管理器](#)
- ▶ [复制索引](#)
- ▶ [Email Alert](#)
- ▶ [文章反馈](#)
- ▶ [浏览反馈信息](#)

相关信息

- ▶ [本刊中 包含 “贝尔实验室垂直分层码” 的相关文章](#)
- ▶ [本文作者相关文章](#)

- [战金龙](#)
- [刘宏清](#)
- [廖桂生](#)