

论文

波束空时分组编码的ICA盲检测方案

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摘要

理论研究已经证明, 结合波束形成和空时分组编码的混合系统与传统的单纯使用波束发射或空时编码的方案相比具有很大的性能提高; 传统的译码方案是借助接收端的信道估计来实现的, 它需要知道准确的信道状态信息(CSI)。但如果信道估计不易实现, 则系统性能将受很大影响。独立分量分析(ICA)作为一种经典的盲信号分离技术可以在不进行信道估计的情况下对发射信号实现有效检测。本文针对接收端的信号结构提出了一种基于ICA的正交检测方案; 并通过仿真将新方案与传统方案进行了性能比较。仿真结果表明, 新方案具有较好的系统适应性和误码率特性。

关键词 [波束空时分组编码\(BSTBC\)](#) [信道估计](#) [独立分量分析\(ICA\)](#)

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Blind Detection of Beam Space-Time Block Coding Based on ICA Scheme

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Abstract

Theoretical investigations have proven that the system combining beamforming with space-time block coding can improve the performance efficiently, compared to the conventional single beamforming or space-time block coding only schemes. The conventional decoding schemes, which need accurate Channel State Information (CSI), are usually based on channel estimation. When the CSI is hard to achieve in some cases, the system performance would be affected heavily. Independent component analysis (ICA), one classical blind signal separation technique, can be used to detect the transmitted signals without channel estimation. Aiming at signals structure at the receiver, this paper proposed an orthogonal detecting scheme based on ICA. Simulations were carried out to compare the performance of the new scheme with conventional schemes. Simulation results for Rayleigh fading channels demonstrated that the new scheme could enhance the flexibility of the communication system and achieve better Bit Error Rate (BER) performance.

Key words [Beam Space-Time Block Coding\(BSTBC\)](#) [Channel estimation](#) [Independent Component Analysis \(ICA\)](#)

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