Authors:

Prajapati Rajeev

Adhikari Prabhat

Lama Norsang

Abstract

In this paper, various multiple input and multiple output (MIMO) detection techniques have been compared on the basis of BER performance and complexity. Maximum likelyhood (ML) detection method has shown optimal solution in MIMO systems compared to conventional detection techniques. However, higher receiver complexity leads to use of lower complexity techniques such as zero forcing (ZF) and minimum mean square error (MMSE) having relatively poor performance. Successive interference cancellation combined with ZF or MMSE has much improved performance but vulnerable to error propagation. Ordered succesive interference cancellation with MMSE (MMSE-OSIC) has reduced error propagation probability and gave the better performance. A new detection technique sphere detection (SD) based on Schnorr-Euchner enumeration has provided ML solution with much less computational complexity. For simulation, Rayleigh channel model has been considered.

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