A High Spectral Efficient Non-Binary TTCM-assisted G2 STBC-OFDM for 4G Systems

Abstract

This paper deals with the MIMO-OFDM technique that candidate with the fourth generation (4G) of the wireless communication systems, this technique can provide high data rate transmission without increasing transmit power and expanding bandwidth, also it can efficiently use space resources and has a bright future. This paper presents the channel coding assisted STBC-OFDM systems, and employs the Coded Modulation techniques (CM), since the signal bandwidth available for wireless communications is limited. Furthermore, a non-binary Turbo Trellis Coded Modulation (TTCM) decoder-based multidimensional MAP algorithm-assisted G2 STBC-OFDM is design and implemented. The idea of Non-binary codes has been extended for symbols de?ned over rings of integers, which outperform binary codes with only a small increase in decoding complexity. The simulation results show that the performance of the TTCM decoding algorithm outperforms the binary decoding methods and suitable to deal with error control coding of the STBC-OFDM schemes.

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**Index Terms**

Computer Science

Wireless

**Keywords**

Turbo codes  TTCM  non-binary error correcting codes  Rings of integers  MIMO

OFDM  MIMO-OFDM

STBC

4G.  .