

DESIGN OF TURBO CODING SCHEME BASED ON SERIALLY CONCATENATED CONVOLUTIONAL CODES FOR FADING CHANNEL

R.GOSWAMI AND G.RAO

Abstract

There have always been quests towards exploring the better coding techniques which offers high coding gain in order to transfer the data with minimal errors, the performance of which are measured in terms of Bit Error Rate (BER). In the multipath environment it necessitates the additional processing in order to mitigate the errors those creep in because of the fading effect created due to this multipath phenomenon. In this paper the use of turbo coding scheme based on Serially Concatenated Convolutional Codes (SCCC) has been presented for achieving the better BER in respect of fading channel. A design of convolutional encoder of rate 1/4, 16 states has been presented which forms the integral part of the Turbo Coder. The performance analysis of this turbo coding scheme has been undertaken in respect of fading environment. The complete analysis has been undertaken in MATLAB. Fading channel has been simulated through Rician Multipath Model and the performance of the proposed Turbo Coding Scheme has been compared with the performance of the Convolutional coding Scheme for the same convolutional encoder and with the uncoded BPSK.

Keywords : TCM, Turbo Coding, Fading Channel