**Neural Network Based Receiver for Multiuser Detection in MC-CDMA Systems**

**ABSTRACT**

In this paper, we present a multiuser detection technique based on artificial neural network (NN) for synchronous multicarrier code division multiple access systems over Rayleigh fading channels. To test the robustness of the proposed receiver, also the effect of power control problem is studied with a comparative manner. Bit error rate (BER) performance of the NN based receiver is compared with the single user bound and conventional receivers. Although the BER performance of the conventional receiver degrades as the number of the users and power level differences among the users increase, as a decision structure, neural network based receiver gives closer BER performance to the single user bound.

***Keywords*** MC-CDMA · Multiuser detection · Neural networks · Mobile cellular communication systems