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## Minimum bit error rate multiuser detection of SDMA-OFDM system using differential evolutionary algorithm

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**Abstract:** Space division multiple access aided orthogonal frequency division multiplexing (SDMA-OFDM) is a promising technique for high data rate future wireless communications. In this paper, a minimum bit error rate (MBER) differential evolution (DE) algorithm based multiuser detector (MUD) for SDMA-OFDM system is proposed. The proposed algorithm directly minimizes the bit error rate (BER) cost function by selecting the optimum weight vectors. Simulation results show that the proposed DE based MUD outperforms the minimum mean-squared error (MMSE) based MUD in terms of the achievable BER. Simulation results also show that the performance of the DE based MUD is comparable to that of the particle swarm optimization (PSO) based MUD.