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## Minimum Bit Error Rate Multiuser Detection of SDMA-OFDM Systems Using Biogeography Based Optimization Algorithm

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**Abstract:** Space division multiple access aided orthogonal frequency division multiplexing (SDMA-OFDM) systems have been adopted in many wireless access technologies to cope with the increasing demands for high data rates. In this paper, a minimum bit error rate (MBER) biogeography based optimization (BBO) algorithm based multiuser detector (MUD) for uplink 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 BBO based MUD outperforms the minimum mean-squared error (MMSE) and the particle swarm optimization (PSO) based MUDs in terms of the achievable BER. Simulation results also show that the performance of the BBO based MUD is comparable to that of the differential evolution (DE) based MUD.