

Symbol Level Precoding with Hardware Constraints at the Base station

Abstract

This study formulates a novel precoding criterion for multiuser MIMO systems based on the minimization of the symbol error probability at the users. Unlike previous formulations that require the symbols to belong to a QPSK modulation the proposed criterion allows the utilization of PSK modulation in general. Based on the proposed minimum symbol error probability criterion a discrete programming problem is derived. Using a sophisticated branch-and-bound method the proposed precoding problem is optimally solved. Numerical results show that the proposed precoding method outperforms the state-of-the-art techniques for all examined SNR values in terms of symbol-error-rate.