

Abstract

We address the problem of blind multiuser detection in DS/CDMA systems that employ QPSK data modulation. We show that by suitable precoding (modification) of the phase of the QPSK data at the transmitter (before spectrum spreading), it is possible to detect the data of any user blindly using only the knowledge of the preceding sequence, regardless of the power of the interferes. The proposed method can be seen as an extension to our earlier preceding approach for BPSK signals in AKS Al Bayati et al. (2004). However, the phase preceding/decoding operation of QPSK signals is a more challenging problem, especially in its decoding procedure. The proposed detection scheme has a deterministic nature and is therefore shown to provide performance advantage in the medium-to-high SNR region.