

## Abstract

Constrained minimum variance (CMV) detection has been proposed for blind multiuser detection of DS/CDMA signals in multipath channels. We suggest a new approach for implementing the CMV detection when an antenna array is used at the receiver. A simple technique is used for restricting the domain of the CMV detector to a smaller subspace based on signals directions of arrivals (DOAs), in a beamformer-like formulation. The proposed technique requires prior knowledge of only the timing of the desired user's signal. It is seen that the proposed subspace restriction is useful for accurate path DOA estimation followed by efficient data detection in heavily loaded systems and over small block sizes of the input signal. This makes this method suitable for slowly time varying channels.