

Abstract

A new approach for blind multiuser (MU) detection of DS/CDMA signals is proposed. This approach is based on modifying the data spectrum, uniquely for each user, through a two stage coloring-whitening precoding scheme. This enables separation and detection of a desired user's signal in an unknown multipath channel, regardless of the power of the interferers. This technique does not involve any sacrifice in data rate or system bandwidth. The method can be considered as an extension of the approach of J. Xavier et al. (see IEEE Trans. on Sig. Processing, vol.49, p.1073-86, 2001) to the multipath DS/CDMA channel. Detection does not involve channel estimation, and does not use code knowledge. Besides, the proposed method can tolerate severe carrier frequency offsets, with reasonable performance.