



PARAFAC RECEIVER FOR BLIND MULTIUSER EQUALIZATION IN WIRELESS COMMUNICATION SYSTEMS WITH TEMPORAL OVERSAMPLING (MonPmOR9)



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* Abstract :

In this paper we present a new blind receiver for multiuser signal separation and equalization. The proposed receiver is designed for wireless communication systems employing multiple antennas and temporal oversampling at the receiver and relies on parallel factor (PARAFAC) analysis. Based on a parametric multipath channel model with frequency-selective fading, we perform a PARAFAC decomposition of the 3-D received signal and present a blind receiver algorithm for multiuser equalization. The proposed receiver algorithm is composed of two processing steps. First, co-channel user signals are separated in the 3-D (space \times time \times oversampling)-domain using an alternating least squares (ALS) procedure. Then, users' sequences are individually equalized in the time-domain using a subspace algorithm. Simulation results compare the performance of the proposed receiver with that of classical ones.