A New Ordering And Grouping Algorithm For The Linear Weighted Group Matched Filter Successive Interference Cancellation Detector

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Summary

A linear group-wise successive interference canceller in a synchronous code-division multiple-access system (CDMA) is considered in this paper. The proposed hybrid detector that combines successive and parallel cancellation techniques makes use of advantages offered by the two techniques. The convergence of the hybrid interference cancellation (HIC) detector is guaranteed by an adjustable parameter that depends upon the largest eigenvalue of the system's transition matrix. Since the largest eigenvalue is difficult to estimate, an upper bound is necessary for successful convergence. For this reason, a new upper bound for the maximum eigenvalue of the system's transition matrix was developed. Moreover, a new ordering and grouping algorithm that results in a higher convergence speed is proposed. Simulation results show that a significant improvement in performance is obtained using this technique.