



Research Article



Blind Multiuser Detection in Asynchronous DS-CDMA Systems over Nakagami- m Fading Channels

Vinay Kumar Pamula

Corresponding Author:
icetet2014@yahoo.com

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ABSTRACT

This paper presents a technique for blind multiuser detection in asynchronous direct sequence-code division multiple access (DS-CDMA) systems over Nakagami- m fading channels with impulsive noise. A new M -estimator is proposed and analyzed for robustifying the detector. A closed-form expression for average error rate of DPSK signals is derived. Average probability of error is computed to evaluate the performance of the new M -estimator based blind multiuser detector in comparison with the linear decorrelating detector, Huber and Hampel estimator based detectors. Simulation results show that the new M -estimator based detector performs well.

Keywords: CDMA; impulsive noise; M -estimator; multiuser detection; Nakagami- m distribution; probability of error.

JNTU Kakinada, Andhra Pradesh, India – 533 003

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