

论文

异步移动通信系统中激活用户及其定时的联合估计

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摘要

该文讨论了异步CDMA系统的激活用户数、激活用户及其定时的联合估计问题。在仅知道小区内所有注册用户特征序列的情况下, 针对过采样接收信号模型, 应用子空间方法来辨识激活用户数、激活用户并同时捕捉它们的定时。然后, 分析了所提算法的特性, 此方法不需要训练序列, 理论分析与大量的仿真结果表明, 此算法简单, 性能优越, 能抗远近效应, 最后, 它还表明当对接收信号进行过采样时, 上述算法性能有明显的改善。

关键词 [异步CDMA系统](#) [激活用户](#) [定时捕捉](#) [子空间方法](#) [过采样](#)

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Joint estimation of active users and their timing in asynchronous CDMA systems

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Abstract

In this paper, joint estimation of the number of active users, active users and their timing in asynchronous CDMA systems are discussed. The subspace based method to oversampling received signal model is applied to identify the number of active users, and at the same time, to estimate active users and their timing while requiring only a priori knowledge of all the registered users' signature sequences in its cell. The performances of the proposed algorithm are analyzed. This method does not require training sequence. Theoretical analysis and simulation show that this algorithm is simple in computation, has good performance in joint estimation of active users and their timing, and is asymptotically near far resistant. Finally, simulation also shows that the performances are obviously improved when the received signal is sampled at multiple of the chip rate (oversampling).

Key words [Asynchronous CDMA system](#) [Active user](#) [Timing acquisition](#) [Subspace based method](#) [Oversampling](#)

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