论文

异步带限DS-CDMA系统在多径衰落信道下的子空间时延序贯估计算法

程云鹏, 蔡跃明

解放军理工大学通信工程学院移动通信教研室,南京,210016

摘要
该文提出了适合于异步DS-CDMA系统在多径衰落信道下的子空间时延序贯估计算法,称为MUSIC-SEA算法。该算法引入了序贯估计思想,将已估时延信息融入后续时延估计过程中,整个时延估计过程为:首先估计噪声子空间,然后依次对每个时延进行粗略估计和精确搜索。给出了MUSIC-SEA算法的迭代执行方法,并进行了性能分析和计算机仿真。结果表明,MUSIC-SEA算法能有效除去多径间的相互影响,提高时延正确估计概率和时延估计精度。

关键词 CDMA 时延估计 多径衰落 子空间

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SUBSPACE-BASED TIME DELAY SEQUENTIAL ESTIMATION ALGORITHM FOR ASYNCHRONOUS BANDLIMITED DS-CDMA SYSTEMS IN MULTIPATH FADING CHANNELS

Cheng Yunpeng, Cai Yueming

Mobile Communication Research Section PLAUST Nanjing 210016 China

Abstract
A subspace-based time delay sequential estimation algorithm named MUSIC-SEA is presented for asynchronous bandlimited DS-CDMA systems in multipath fading channels. The sequential estimation idea is introduced, and the knowledge of the estimated time delays is involved in the subsequent estimation procedures. The whole procedure can be described as follows: the noise subspace is estimated first, and then coarse estimation and fine search of time delay are implemented for every time delay sequentially. The iterative steps are presented, the performance of the algorithm is analyzed, and simulations are carried out. The results show that the algorithm can mitigate the interference of multipath and provide time delay estimation with high probabilities and high accuracy.

Key words CDMA Time delay estimation Multipath fading Subspace

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通讯作者
作者个人主页 程云鹏; 蔡跃明