

### 一种基于PN序列加权前导的自适应OFDM符号同步算法

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## An Adaptive Symbol Synchronization for OFDM Systems Based on PN Sequence-weighted Preamble

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摘要

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**摘要** 该文对传统的基于PN序列加权前导的定时度量进行了理论分析,并提出了一种自适应OFDM符号同步算法。新算法在改进PN序列加权前导的基础上,综合利用循环前缀的重复特性和基于PN序列加权前导定时度量的分布特性设计定时方案,依据一定范围内定时度量的最大值自适应地进行符号同步估计。理论分析和仿真结果表明,和传统的基于PN序列加权前导的符号同步方法相比,新提出的方法可降低符号同步估计的误检概率,有效提高系统的定时性能。

**关键词:** OFDM 符号同步 PN序列 自适应方法

**Abstract:** The conventional timing metric based on Pseudo Noise (PN) sequence-weighted preamble for OFDM systems is analyzed, and an adaptive symbol synchronization method is proposed. With the improved preamble, the proposed method uses the repeated property of the cyclic prefix and the distribution property of timing metric based on PN sequence-weighted preamble to design timing scheme, and carries out adaptive symbol synchronization according to the peak value of timing metric in a selected region. Analysis and simulation results show that compared with the conventional symbol synchronization method based on PN sequence-weighted preamble, the proposed method achieves low false detection probability, and improves the estimation performance for symbol synchronization.

**Keywords:** OFDM Symbol synchronization Pseudo Noise (PN) sequence Adaptive method

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