

论文

扩频ALOHA多址系统吞吐量和时延性能分析

孙诗东^{①②}, 聂景楠^{①②}

^①解放军理工大学通信工程学院 南京 210007; ^②东南大学移动通信国家重点实验室 南京 210096

收稿日期 2004-11-10 修回日期 2005-4-18 网络版发布日期 2007-11-28 接受日期

摘要

该文深入地研究了扩频ALOHA多址(SAMA)系统的信道接入性能, 推导了通用的扩频ALOHA多址系统平均误比特率公式, 给出了扩频ALOHA系统吞吐量和时延性能表达式, 同时还分析了信道编码对系统性能的改进, 给出了相应的仿真和数值结果。结论表明, 扩频ALOHA多址系统可以显著提高传统ALOHA系统的吞吐量和时延性能, 提高程度随扩频增益增加而增加, 引入信道编码可以进一步提高网络性能。

关键词 [扩频](#) [ALOHA](#) [吞吐量](#) [传输时延](#)

分类号 [TN914.42](#)

Performance Analysis of Throughput and Delay for Spread Spectrum ALOHA Multiple Access Systems

Sun Shi-dong^{①②}, Nie Jing-nan^{①②}

^{①②}Institute of Communications Engineering PLA Univ. of Sci.&Tech., Nanjing 210007, China; ^{①②}National Mobile Communications Research Laboratory, Southeast Univ., Nanjing 210096, China

Abstract

In this paper, the performance of Spread spectrum ALOHA Multiple Access (SAMA) system is deeply studied. The general formula of average bit-error-rate for SAMA system is derived, and the expression for calculating throughput and delay of transmission in SAMA system is also presented, and moreover, the performance improvement in throughput and delay when using forward-error-control technique is analyzed. Numerical results show that a significant performance improvement can be gained by using spread spectrum ALOHA other than conventional ALOHA system, and the improvement will be increased with the increasing of processing gain. Consequently, SAMA is very suitable for applications in distributed packet radio networks.

Key words [Spread Spectrum](#) [ALOHA](#) [Throughput](#) [Transmission delay](#)

DOI:

通讯作者

作者个人主页

孙诗东^{①②}; 聂景楠^{①②}

扩展功能

本文信息

▶ [Supporting info](#)

▶ [PDF\(216KB\)](#)

▶ [\[HTML全文\]\(OKB\)](#)

▶ [参考文献\[PDF\]](#)

▶ [参考文献](#)

服务与反馈

▶ [把本文推荐给朋友](#)

▶ [加入我的书架](#)

▶ [加入引用管理器](#)

▶ [复制索引](#)

▶ [Email Alert](#)

▶ [文章反馈](#)

▶ [浏览反馈信息](#)

相关信息

▶ [本刊中 包含“扩频”的 相关文章](#)

▶ 本文作者相关文章

· [孙诗东](#)

· [聂景楠](#)