

Analysis of Spatially Distributed FU-FB S-ALOHA in Fading Channels Using TUA

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Abstract

The Tagged user analysis (TUA) is a generic approximate method developed to analyze random access protocols for finite-user finite-buffer systems that avoids complexities of Markovian analysis by using available queuing results. In this paper, TUA method is extended to the analysis of finite buffer S-ALOHA operating over flat fading radio channels when the user population is spatially distributed. The expressions for system performance indices are derived. It is shown that for moderate number of active users, the simulation and analytical results have a close fit.