عنوان مقاله:

A Recursive Approximation Approach of non-iid Lognormal Random Variables Summation in Cellular Systems

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خلاصه مقاله:

Co-channel interference is a major factor in limiting the capacity and link quality in cellular communications. As the co-channel interference is modeled by lognormal distribution, sum of the co-channel interferences of neighboring cells is represented by the sum of lognormal Random Variables (RVs) which has no closed-form expression. Assuming independent, identically distributed (iid) RVs, the sum of lognormal RVs has been approximated by another log-normally distributed RV in the literature. In practice, the co-channel interference RVs have identical standard deviations (SDs) and different means. In this paper, first a new method based on curve fitting is proposed to approximate the sum of two log-normally distributed RV's with identical SDs and different means. Then a recursive method using the surface fitting is developed for approximating the sum of more than two lognormal RVs. Results show that the proposed method can approximate the first and the second moments of the resulting RV very well.

کلمات کلیدی:

approximation, Co-Channel Interference, Cumulative Distribution Function (CDF), Curve Fitting, Lognormal Distribution, Recursive, Surface Fitting