Outage probability analysis of Co-Tier interference in heterogeneous network

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Abstract

In Heterogeneous Network (HetNet), the femtocell (HeNB) has been deployed by the telecommunication industries to provide extensive coverage as well as capacity in an indoor. These HeNBs are Customer Premise Equipment (CPE) which is randomly used in co-channel with macrocell (MeNB) and causes the Co-Tier Interference (CTI) in OFDMA. The effect of CTI in OFDMA systems can lead the system throughput degradation and service disruption. Because of quick direct changing features in Rayleigh channel, it is compulsory to succeed the satisfactory performance. The signal-to-interference noise ratio (SINR) is arbitrary which drives the highest capacity to be an irregular variable. However, this paper derives the expressions of outage probabilities based on the hybrid Genetic Algorithm (GA) with biogeography based dynamic subcarrier allocation (HGBBDSA) algorithm is implemented in reducing the outage probability. The outage probability countenance is expressed for the moment-generating function of the total SINR at the receivers end. The simulation results demonstrate that the HGBBDSA can lessen the outage to 45\% than existing methods.

Author keywords

Co-tier interference, Heterogeneous network, HGBBDSA, LTE-A, OFDMA

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