

Performance Analysis of Dual-Hop Amplify-and-Forward Systems with Multiple Antennas and Co-channel Interference

Abstract:

This paper investigates the performance of a dual-hop amplify-and-forward relaying system with co-channel interference at both the relay and destination nodes. The source node is equipped with multiple antennas and adopts the orthogonal space-time block code to increase the system performance. Both the outage probability and the average bit error rate under the presence of multiple Rayleigh fading interferers are obtained in closed form for the variable and fixed-gain relaying schemes. Moreover, the effect of imperfect channel estimation on the variable-gain relaying scheme is also discussed. The effect of co-channel interference at both the relay and destination nodes are discussed. Simulation experiments are also conducted to verify the theoretical derivations.