Abstract

In this paper, the sub-optimal power allocation relay selection (SBS-AF) algorithm in multiple-input multiple-output (MIMO) relay networks was proposed. The energy efficiency and the symbol error rate (SER) in multiple antennas MIMO relay networks is investigated. Amplify and forward (AF) relay scheme, where N relay access point(s) occupied with Q antennas cooperatively forwards packets to the destination is employed. Under the assumption of Rayleigh fading channels and time division multiplexing (TDM), a new exact closed-form expressions for the outage probability, SER and the energy efficiency valid for N Relays and Q antennas was derived. Further asymptotic analysis is done in high SNR regime to characterize the energy efficiency in terms of the diversity order and the array gain. Our scheme was compared with all relay participate (AP-AF) and the recent of best relay selection scheme (S-AF). The results show that our scheme achieves better diversity than the fixed relaying schemes as well maintaining a full diversity of (NQ)+1. The behavior of the energy efficiency with the relay locations is also discussed in this paper.
References


Index Terms

Computer Science    Wireless

Keywords

Energy Efficiency, Cooperative Network, Amplify and Forward, MIMO, Power Allocation.