عنوان مقاله:

Beamforming Realization For Two Way Full Duplex Amplify-and-Forward MIMO Relay Network

محل انتشار:

چهارمین کنفرانس ملی فناوری اطلاعات، کامپیوتر و مخابرات (سال: 1396)

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خلاصه مقاله:

In this paper, a full duplex two-way MIMO relay network with imperfect cancellation of loopback self-interference (SI) is considered in which two MIMO users communicate via an amplify-and-forward (AF) relay. The users and relay can transmit in all time slotsconcurrently and operate in full duplex mode. Two beamforming algorithms named relay beamforming and joint beamforming, are evaluated via simulation. These methods are designed to minimize the mean square error (MSE) under transmit power constraint atrelay. Moreover, the beamforming matrices in all nodes should be updated in each time slot because the residual SI in the previous time slots can be amplified by the current beamforming matrix and forwarded with desired signals to other nodes in current time slot. It is assumed that all nodes are aware of all channels for m latest time slots and use them to calculate beamforming matrices. For the case of infinite memory, a recursive algorithm is proposed to compute the beamforming matrix recursively. The performance of the system is evaluated in terms of average bit error rate (BER) and MSE for various number of relay's and node's antennas and memory sizes. The simulation results are compared with analytical values and an acceptable coincidence can be observed between them.

کلمات کلیدی:

Two way multi-antenna relay, full-duplex (FD), amplify-and-forward (AF), beamforming, MSE, BER