عنوان مقاله:

A New Cooperative Approach for Cognitive Radio networks with correlated wireless channels

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خلاصه مقاله:

An effective cooperative cognitive radio system is proposed, when the wireless channels are highly correlated. The system model consists of two multi-antenna secondary users (SU TX and SU RX), constituting the desired link and some single-antenna primary and secondary users. The objective is the maximization of the data rates of the desired SU link subject to the interference constraints on the primary users. An effective system, exploiting Transmit Beamforming (TB) at SU TX, cooperation of some single-antenna SUs and Cooperative Beamforming (CB) at them and the antenna selection at SU RX to reduce the costs associated with RF-chains at the radio front end at SU RX, is proposed. Due to the issue of MIMO channels with correlated fading, some problems arise such as inapplicability of the well-known Grassmanian Beamforming as TB scheme at SU TX. We then propose a method to overcome this problem. After formulating the problem, a novel iterative scheme is proposed to find the best TB weight vector in SU TX and best subset of antennas at SU RX, considering the correlated channel

کلمات کلیدی:

Cognitive Radio Networks, Cooperative Communications, MIMO Systems, Correlated Channels