Interference Cancellation Using Joint Beamforming and Power Control Techniques in Cooperative Networks

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***Abstract*—In this paper, the interference cancellation (IC) techniques are studied for cooperative networks with the interference source if the destination is disturbed by the co-channel interference (CCI). In order to solve such interference problem, the beamforming techniques with the appropriate weight estimation for array antenna at the source will be employed. We can also control the transmitted power at the interference source, and maintain nearly the diversity gain compare with the existing decode and forward protocol. The system performance can be enhanced by adopting the power control strategy at the interference source by channel quality criterion and signal combining techniques. The maximum ratio combining (MRC) and the cooperative maximum ration combining (C-MRC) are used to combine the received signals arrived at the destination to achieve the minimum probability of error based on the experimental results from simulations. The results show proposed IC C-MRC systems had the lower probability of error than MRC because effect from the weighted of received signal from the relay because of the effect of three weighted factors: the BF algorithm for the weighted estimation for the array antenna, the weighting factor of the proposed power control strategy, and the weighted of received signal from the relay**.

***Keyword*—Beamforming, Cooperative Maximum Ratio Combining (C-MRC), Interference Cancellation, Power Control**

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