Performance Analysis Of Coded Cooperation Diversity In Wireless Networks

Zummo, S.A.;Dept. of Electrical Engineering, King Fahd University of Petroleum and Minerals (KFUPM), Dhahran 31261, Saudi Arabia. Email: zummo@kfupm.edu.sa;

http://www.kfupm.edu.sa

Summary

Diversity is an effective technique in enhancing the link quality and increasing network capacity. When multiple antennas can not be used in mobile units, user cooperation can be employed to provide transmit diversity. In this paper we analyze the error performance of coded cooperation diversity with multiple cooperating users. We derive the end-to-end bit error probability of coded cooperation (averaged over all cooperation scenarios). We consider different fading distributions for the interuser channels. Furthermore, we consider the case of two cooperating users with correlated uplink channels. Results show that more cooperating users should be allowed under good interuser channel conditions, while it suffices to have two cooperating users in adverse interuser conditions. Furthermore, under bad interuser conditions, more cooperating users can be accommodated as the fading distribution becomes more random.

For pre-prints please write to:abstracts@kfupm.edu.sa