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Performance Analysis of Multiuser Diversity in Multiuser Two-Hop Decode-and-forward Cooperative Multi-Relay Wireless Networks

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Abstract: Cooperative diversity (CD) has been adopted in many communication systems because it helps in improving performance of the wireless communication systems with the help of the relays that emulate the multiple antenna terminals. This work aims to provide the derivation of the performance analysis expressions of the multiuser diversity (MUD) in the two-hop cooperative multi-relay wireless networks (TCMRNs). Considering the work analysis, we provide analytically the derivation of a closed form expression of the two most commonly used performance metrics namely, the outage probability and the symbol error probability (SEP) for the fixed decode-and-forward (FDF) protocol with MUD.