

## Cooperative CDD Scheme Based On Hierarchical Modulation in OFDM System

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**Abstract :** In order to achieve high data rate and increase the spectral efficiency, multiple input multiple output (MIMO) system has been proposed. However, multiple antennas are limited by size and cost. Therefore, recently developed cooperative diversity scheme, which profits the transmit diversity only with the existing hardware by constituting a virtual antenna array, can be a solution. However, most of the introduced cooperative techniques have a common fault of decreased transmission rate because the destination should receive the decodable compositions of symbols from the source and the relay. In this paper, we propose a cooperative cyclic delay diversity (CDD) scheme that uses hierarchical modulation. This scheme is free from the rate loss and allows seamless cooperative communication.

**Keywords :** MIMO, cooperative communication, CDD, hierarchical modulation

**Conference Title :** ICMWC 2015 : International Conference on Mobile and Wireless Communications

**Conference Location :** Venice, Italy

**Conference Dates :** August 13-14, 2015