Relay Selection in NOMA-Based Diamond Relaying Networks

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Abstract—**Diamond relaying networks based on non-orthogonal multiple access (NOMA) can offer higher achievable data rates than the conventional relaying networks. In diamond relaying networks, two relays cooperate to deliver two messages to the destination within only two time slots. This paper investigates the impact of relay selection, from two relay pools, on the performance of such networks. The system performance is analyzed through closed-form and asymptotic expressions of the sum ergodic rate. The paper also presents practical design guidelines of optimum location-based relay selection for IoT-based networks with randomly deployed relays.**

Keyword—Cooperative relaying, ergodic capacity, NOMA, relay selection, sum rate.

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