Source Nodes Power Optimization in Energy Harvesting Two-Way Relay Networks

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***Abstract*—In this paper, we investigate the outage performance for the two-way relaying model in which a half-duplex energy harvesting relay assists in the bi-directional communication of two source nodes. Closed form results for the outage probability of two-way relaying networks has been introduced and corrected in the scenario of an energy harvesting relay. We then consider the relationship between source nodes power allocation, relay energy harvesting efficiency and outage probability. The two source nodes share the limited total power, to minimize the outage probability, we derive closed form results for the source nodes power allocation with fixed relay energy harvesting efficiency. Simulation results are provided to confirm the analytical results.**

***Keyword*—Two-way relay, cooperative communication, outage probability, power allocation, energy harvesting**

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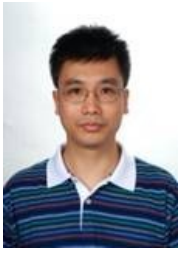

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