

**Outage Analysis for SWIPT
Enabled Two-Way Cognitive
Cooperative Communications**

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ABSTRACT

- In this paper, we study a cooperative cognitive radio network where the secondary user-transmitter assists bi directional communication between a pair of primary users following the principle of two-way relaying.
- In return, it gets access to the spectrum of the PUs to enable its own transmission to SU-receiver.
- Further, in order to support sustainable operation of the network, SU-Tx is assumed to harvest energy from the RF signals received from the PUs, using the technique of simultaneous wireless information and power transfer.

EXISTING SYSTEM

- On the other hand, two-way relaying is being investigated as a spectrally efficient means for supporting bi-directional communication between a pair of users.
- Use of CCRN in a TWR system is expected to further improve the spectrum utilization efficiency. In such a system, the SU performs TWR to assist bi-directional communication between a pair of PUs.

PROPOSED SYSTEM

- In this paper, we have studied a spectrum sharing protocol in an energy harvesting DF relay assisted two way communication network.
- Analytical expressions for outage probabilities at the destinations are derived and verified using simulations.
- It is shown that in terms of spectrum and energy efficiency, two-way energy harvesting DF-relay protocol is found to outperform the corresponding one-way protocol.

HARDWARE REQUIREMENTS

- Processor - Intel core i3
- RAM - 2B
- Hard Disk - 20 GB

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SOFTWARE REQUIREMENTS

- Operating System : LINUX
- Tool : Network Simulator-2
- Front End : OTCL (Object Oriented Tool Command Language)

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