

**DISTRIBUTED POWER CONTROL SCHEMES FOR IN-
BAND FULL-DUPLEX
ENERGY HARVESTING WIRELESS NETWORKS**

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ABSTRACT

- This paper studies two power control problems in energy harvesting wireless networks where one hybrid base station (HBS) and all user equipments (UEs) are operating in in-band full-duplex mode.
- We consider minimizing the aggregate power subject to the quality of service requirement constraint, and maximizing the aggregate throughput. We address these two problems by proposing two distributed power control schemes for controlling the uplink transmit power by the UEs and the downlink energy harvesting signal power by the HBS.

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CONT...

- In our proposed schemes, the HBS updates the downlink transmit power level of the energy-harvesting signal so that each UE is enabled to harvest its required energy for powering the operating circuit and transmitting its uplink information signal with the power level determined by the proposed schemes.
- We show that our proposed power control schemes converge to their corresponding unique fixed points starting from any arbitrary initial transmit power. We will show that our proposed schemes well address the stated problems, which is also demonstrated by our extensive simulation results.



EXISTING SYSTEM

Existing related resource allocation schemes for EHWNs are mostly centralized and focus on the objective of throughput maximization. Although there has been a rich literature on designing distributed power control scheme in traditional wireless network without energy harvesting.

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PROPOSED SYSTEM

- In this paper, we focus on designing distributed power control schemes for in-band full-duplex energy harvesting wireless networks (IBFD-EHWNs).
- We assume that the energy source is dedicated, where an HBS is employed for transferring the energy signals to the UEs and concurrently receiving their information signals.

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HARDWARE REQUIREMENTS

- Processor - Pentium-IV
- Speed - 1.1 Ghz
- RAM - 256MB(min)
- Hard Disk - 20 GB
- Key Board - Standard Windows Keyboard
- Mouse - Two or Three Button Mouse
- Monitor - SVGA

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SOFTWARE REQUIREMENTS

- Tool - Network Simulator-2
- Operating system - LINUX
- Front end - OTCL (Object Oriented Tool Command Language)

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