

D2D Communications
Underlying Wireless Powered
Communication Networks

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ABSTRACT

- In this paper, we investigate the resource allocation problem for D2D communications underlying wireless powered communication networks, where multiple D2D pairs harvest energy from a power station equipped with multiple antennas and then transmit information signals simultaneously over the same spectrum resource.
- The aim is to maximize the sum throughput via joint time scheduling and power control, while satisfying the energy causality constraints.

EXISTING SYSTEM

- The formulated non-convex problem is first transformed into a nonlinear fractional programming problem with a tactful reformulation.
- Then, by leveraging D.C. programming, a suboptimal solution to the non-convex problem is obtained by iteratively solving a sequence of convex problems.
- In WPCNs, a power station transfers wireless energy to some low-power users with a single antenna due to the hardware constraint.

PROPOSED SYSTEM

- In this paper, we investigated the resource allocation scheme for D2D communications underlying WPCNs, where the harvest-then-transmit protocol was employed.
- We tried to maximize the sum throughput of all D2D pairs while satisfying the energy causality constraints.
- The considered joint time scheduling and power control problem was formulated as a non-convex optimization problem.
- By leveraging D.C. programming, a suboptimal solution of the non-convex problem can be obtained by iteratively solving a sequence of convex problems.

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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REFERENCE

- [1] X. Lu, P. Wang, D. Niyato, D. I. Kim, and Z. Han, "Wireless networks with RF energy harvesting: A contemporary survey," Nov. 2015.
- [2] K. Huang and E. Larsson, "Simultaneous information and power transfer for broadband wireless systems," *IEEE Trans. Signal Process.*, vol. 61, no. 23, pp. 5972-5986, Dec. 2013.
- [3] Z. Hadzi-Velkov, I. Nikoloska, G. K. Karagiannidis, and T. Q. Duong, "Wireless networks with energy harvesting and power transfer: Joint power and time allocation," *IEEE Signal Process. Lett.*, vol. 23,