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Maximization of Minimum Rate for Wireless Powered Communication Networks in Interference Channel

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Hanjin Kim ; Hoon Lee ; Seokju Jang ; Jihwan Moon ; Inkyu Lee

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Abstract:

This paper investigates wireless powered communication networks in an interference channel. In this system, due to asymmetric time allocation of the downlink and the uplink among multiple cells, cross-link interference may occur which significantly affects the overall performance. Considering this interference issue, we study a minimum rate maximization problem to overcome a severe imbalance on a rate distribution among users. The minimum rate maximization problem is non-convex, and thus we propose an algorithm that updates the time allocation and the users' transmit power based on the Lagrangian duality method and the Perron-Frobenius theorem, respectively. Simulation results verify that the proposed methods outperform conventional schemes.

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