Achievable Throughput of Energy Harvesting Fading Multiple-Access Channels under Statistical QoS Constraints

ABSTRACT

This paper studies the achievable throughput of fading multiple-access channels • with energy harvesting transmitters subject to statistical quality of service (QoS) constraints in the form of limitations on the buffer overflow probability. Effective capacity, which characterizes the maximum constant arrival rate that a given process can support while satisfying the QoS constraints, is employed as the performance metric. Perfect channel state information (CSI) and energy arrivals are assumed to be available at both the transmitters and the receiver. Then, for a given decoding order strategy in two-user multiple-access channels, a suboptimal power control policy based on the average energy arrivals and causal energy and channel information is proposed and shown to achieve performance close to the optimal one.

EXISTING SYSTEM

- In Existing system, Suboptimal power control policies that can achieve the average rate within constant additive and multiplicative gap of the channel capacity have been proposed.
- On the other hand, the offline power control policies are identified based on the assumption of noncausal energy and channel state information (CSI), and hence are applicable to highly predictable systems.

PROPOSED SYSTEM

- In proposed system, the achievable throughput of fading MAC with energy harvesting transmitters under statistical quality of service (QoS) constraints, in the form of limitations on the buffer violation probabilities.
- The causal energy and CSI information is available at both the transmitters and the receiver, and investigates the throughput for different transmission policies with naive power control.
- There is no prior work on the power control policies in fading MAC with energy harvesting transmitters under QoS constraints.

SYSTEM REQUIREMENTS

HARDWARE REQUIREMENTS

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

SOFTWARE REQUIREMENTS

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

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