# ROUTING IN ACCUMULATIVE MULTI-HOP NETWORKS

# ABSTRACT

➤ This paper investigates the problem of finding optimal paths in single-source single-destination accumulative multihop networks. We consider a single source that communicates to a single destination assisted by several relays through multiple hops. At each hop, only one node transmits, while all the other nodes receive the transmitted signal, and store it after processing/decoding and mixing it with the signals received in previous hops.

➤ That is, we consider that terminals make use of advanced energy accumulation transmission/reception techniques, such as maximal ratio combining reception of repetition codes, or information accumulation with rateless codes. Accumulative techniques increase communication reliability, reduce energy consumption, and decrease latency.

# CONT…

➢ We investigate the properties that a routing metric must satisfy in these accumulative networks to guarantee that optimal paths can be computed with Dijkstra's algorithm.

➢ We model the problem of routing in accumulative multi-hop networks, as the problem of routing in a hyper graph. We show that optimality properties in a traditional multi-hop network (monotonicity and isotonicity) are no longer useful and derive a new set of sufficient conditions for optimality. We illustrate these results by studying the minimum energy routing problem in static accumulative multi-hop networks for different forwarding strategies at relays.

# EXISTING SYSTEM

➢ The problem of routing in traditional multi-hop (TM) communication networks, where each relay node only listens to the immediately previous node is quite well understood today.

➢ For the purpose of routing, these networks are well modeled by directed graphs. Given a routing metric criteria, the optimality conditions that guarantee that efficient path search algorithms, such as Dijkstra's algorithm.

# PROPOSED SYSTEM

➤ The DF EAM algorithm can be seen as a low complexity heuristic routing solution for the DF AM network. Other heuristic algorithm for the DF AM network have been Proposed.

➤ To that end, we focus mainly on decode-and-forward (DF) based relaying strategies. DF relay nodes decode the source message completely by accumulating energy, or information from all previous transmissions.

# 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)

# REFERENCES

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[3] I. Maric and R. D. Yates, "Cooperative multihop broadcast for wireless networks," IEEE J. Sel. Areas Commun., vol. 22, no. 6, pp. 1080–1088, Aug. 2004.