

# **INFLUENCE OF CAPTURE EFFECT ON THE EFFECTIVENESS OF GSP IN WIRELESS SENSOR NETWORKS**

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## **ABSTRACT**

The Gossip-based Sleep Protocol (GSP) is a routing protocol designed to save energy in wireless sensor networks. When two radio signals arrive at a sensor simultaneously the capture effect, a physical layer phenomenon, results in one packet being received and all others lost, impacting the performance of routing protocols. Experiments were conducted using simulations of a 25-node square grid network running GSP. Results from different Capture Probabilities show the Gossip Probability,  $p_{\text{gsp}}$ , may be tuned to take advantage of the capture effect phenomenon. Values of  $p_{\text{gsp}}$  between 0.3 and 0.4 may be used to improve the tradeoff between Energy Consumption, Delay and Packet Reception Probability.