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研究简报

无线传感器网络中增加协作传输及其能量效率研究

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摘要
该文研究了无线传感器网络中增加协作传输及其能量效率，解决了“何时协作”和“协作的能效”两个关键问题。导出了直接传输与协作传输的能效表达式，讨论了主要参数对协作传输性能的影响。仿真结果表明：当通信距离大于“门限距离”时，增加协作传输的能效优于直接传输的能效；通过优化所选中继节点的位置或调制阶数可以提高能效。

关键词 无线传感器网络 增加协作传输 直接传输 能量效率

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Research on Incremental Cooperation Transmission and Its Energy Efficiency in Wireless Sensor Networks

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Abstract
The scheme of incremental cooperation transmission and its energy efficiency in wireless sensor networks are studied in this paper. Two important issues including ‘when to cooperate’ and ‘performance of cooperation’ are also solved. The expressions of energy efficiency of direct and cooperative transmission are deduced respectively and then the effects of key parameters on the performance of cooperative transmission are discussed. Simulation results demonstrate that the incremental cooperation transmission provides better energy efficiency than direct transmission when the communication distance is bigger than the threshold of the distance. Energy efficiency can be enhanced by optimizing the position of the relay node selected or the modulation level.

Key words Wireless Sensor Networks (WSN) Incremental cooperation transmission Direct transmission Energy efficiency

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