传感技术学报

基于蚁群算法的LEACH协议研究

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摘　要：

针对LEACH协议中簇头节点与汇聚节点之间采用单跳通信造成能量损耗过快的问题，提出了一种基于蚁群算法的LEACH协议，该算法利用蚁群算法易实现、支多路径的特点，结合节点的剩余能量及传输距离，通过对网络中信息素浓度的建立和更新，达到降低簇头节点能量能耗消耗过快的问题。仿真实验结果表明，法在降低能耗、延长网络生命周期等方面，与LEACH协议相比，具有更好的性能。

关键词：无线传感器网络；路由协议；LEACH协议；蚁群算法；

Analysis of LEACH protocol based on ant algorithm

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Abstract:

In order to solve the problem of excessive energy consumption for transmitting to sink node directly from cluster heads in wireless sensor network routing LEACH algori a routing algorithm based on ant colony was proposed. The algorithm takes advantage of the characteristics of ant algorithm , i.e. being easy to be realized, and supporti multi-path to build cluster routing, through the information of its distance and remaining energy of nodes. Then the distance and remaining energy of the neighborhood v integrated in the computation of pheromone concentration. The results of simulation show than the algorithm is of better performances in average energy dissipation, network lifetime prolonging and expansility enhancing than LEACH.

Keywords: wireless sensor network; routing protocol; LEACH; ant algorithm