

## 基于加权优化选择两级簇头的WSN路由协议

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摘要:

在无线传感器网络中, LEACH与GSEN算法是分簇路由协议中重要的两种。本文以LEACH与GSEN为基础提出了一种新型的加权优化两级簇头路由算法TL-WAC(two levels -Weighted Clustering Algorithm), 该算法首先在LEACH将网络分成若干个簇的基础上, 加权优化选择簇头。再将选好的簇头以路径最短为原则采用贪婪算法形成一条链, 考虑链中节点能量不小于链中平均能量及离基站的距离最近, 选出一簇头作为高级簇头, 融合其它簇头的的数据后转发给基站。MATLAB仿真结果显示, 改进后的协议能够均衡网络节点能耗, 有效延长了网络的稳定期。

关键词: 无线传感器网络; 分簇路由协议; 加权优化; TL-WAC

## Routing protocol based on optimizing choosing two levels clusters for Wireless Sensor Network

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**Abstract:**

In wireless sensor network, LEACH (Low Energy Adaptive Clustering Hierarchy) and GSEN (Group-based Sensor Network) are the two most important algorithms in clustering routing protocols. Based on the basis of algorithm GSEN and LEACH, this article proposes a new routing algorithm, TL-WAC(two levels --Weighted Clustering Algorithm), which actually selecting weighted clusters after the network been divided in accordance with the principle of LEACH. Then uses greedy algorithm to make a chain with the most short for the principle ,considering their energies and distances from the base, single out one as senior cluster, which forwarding data to the base station after mixing with other clusters. MATLAB simulation shows that, the improved protocol has the result of better balancing network node energy consumption, and prolonging the stable time of network effectively.

**Keywords:** WSN; hierarchical routing protocol; weighted optimization; TL-WAC

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