基于**LEACH**的**WSNs**分簇优化策略

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摘　要：

针对LEACH算法中能量消耗不均匀的缺陷，本文提出了一种改进的路由协议来提高无线传感器网络的能量效率。在簇首选择阶段，引入节点剩余能量和初始能量来调节传感器节点随机数的大小；在成簇阶段，该算法将节点的剩余能量和距离汇聚节点的远近作为成簇的依据，使簇首的分布更加合理；在数据传输阶段，将节点与汇聚节点之间的距离及节点的剩余能量相结合，提出一种单跳与多跳相结合的传输方式，从而减少了能量消耗。仿真实验表明，改进后的算法能够更好的减少能耗，延长无线传感器网络的生命周期。

关键词：无线传感器网络；LEACH算法；随机数；剩余能量

Clustering optimization strategy for WSNs based on LEACH

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Abstract:

To solve the unevenness of energy consumption in LEACH, We propose an improved routing protocol to improve the energy efficiency of the wireless sensor networks. In the cluster heads selection stage, this paper introduces residual energy and initial energy of the sensor nodes as two important components to adjusts the values of random numbers. In clustering stage, the algorithm uses the residual energy and the distance between sensor nodes and the sink node as the basis for clustering to make the distribution of the cluster heads more reasonable. In the stage of data transmission, a route method, which combines single hop route with multi-hop route according to the distance between sensor nodes and the sink node and the residual energy, is proposed to reduce energy consumption. Simulation results demonstrate that the improved algorithm is more efficient in reducing energy consumption and prolonging the life cycle of wireless sensor networks.nd prolong the life cycle of wireless sensor networks.

Keywords: wireless sensor networks;LEACH algorithm; random numbers;residual energy

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