一种分布式能量有效的无线传感器网络分簇路由协议

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摘　要：
提出了一种分布式能量有效的无线传感器网络分簇路由协议DEEC(Distributed Energy-efficient Clustering Algorithm)。该协议采用基于时间的簇首选择算法，广播时间取决于自身剩余能量和其邻居节点的剩余能量。在数据传输阶段，采用簇内单跳与簇间多跳相结合的方式，引入权值函数优化簇首中继节点的选择。仿真实验结果表明，与LEACH，PEGASIS协议相比，DEEC能够有效地节约单个节点能量、均衡网络能耗、延长网络生存周期。

关键词：无线传感器网络；路由协议；分簇

A Distributed energy-efficient clustering algorithm for wireless sensor networks

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Abstract:

A distributed energy-efficient clustering algorithm (DEEC) for wireless sensor networks (WSNs) is proposed. DEEC uses time-based cluster head selection algorithm, and broadcasting time depends on the remaining energy of itself and neighbors'. In the phase of data transmission, DEEC adopts a combination of single-hop mode for intra-cluster communication and multi-hop mode for inter-cluster communication. Simulation results demonstrate that DEEC outperforms LEACH (low-energy adaptive clustering hierarchy) and PEGASIS (power-efficient gathering in sensor information systems), and it can efficiently decrease the dead speed of the nodes, balance the energy dissipation of all nodes, and prolong the network lifetime.

Keywords: Wireless sensor networks; Routing protocol; Clustering

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