基于参考能量的无线传感器网络连通支配集算法研究*)

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摘　要：

无线传感器网络中通常利用连通支配集形虚拟骨干网以进行分层次的路由。现有算法所得到的连通支配集或者只适用于图的连通度比较大的情况，或者没有考虑支配节点的能量等特性。本文设计了一种基于参考能量的连通支配集构造算法，在考虑支配节点的剩余能量的基础上生成连通支配集，使获得的连通支配集不仅适合于各种连通度的拓扑情况，而且具有更好的能量性能。

关键词：无线传感器网络；参考能量；连通支配集；拓扑聚合

A Reference Energy-based Connected Dominating Set Algorithm in Wireless Sensor Networks

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Abstract:

Connected dominating set can be used to form a virtual backbone for the hierarchical routing in the wireless sensor networks. Most of the existed algorithms for connected dominating sets can only be used to the topologies that have larger connecting degrees. And those algorithms don’ t consider the energy characteristics of the dominating sets. In this paper, a Reference Energy-based Connected Dominating Set (RECDS) constructing algorithm is proposed, which can achieve smaller CDS in different topologies with different connecting degrees. Besides, the energy character of the dominating nodes is considered. As the result, routing in the wireless sensor networks with such connected dominating set will have better performance.

Keywords: Wireless Sensor Networks; Reference Energy; Connected Dominating Set; Topology Aggregation

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