

论文

WSN中一种能量有效的自适应协同节点选择方案

张余^{①②}, 蔡跃明^{①③}, 潘成康^①, 徐友云^①

^①解放军理工大学通信工程学院无线通信系 南京 210007; ^②总参第63研究所 南京 210007; ^③东南大学移动通信国家重点实验室 南京 210096

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摘要

该文针对能量有限的无线传感器网络, 提出了一种能量有效的自适应协同节点选择方案, 该方案先根据预设的能量阈值来确定协同节点的可选集, 再综合考虑可选节点的剩余能量和信道状况, 选出最佳节点作为簇头节点的协同节点。通过对总能耗的最小化, 获得不同传输距离对应的最优能量阈值; 根据簇头节点与数据融合中心间的距离自适应地预设最优能量阈值, 使总能耗最小。理论分析和仿真结果证明, 该文方案能在传输能耗和电路能耗间找到最佳平衡点, 有效地减小总能耗, 使总能耗达到最小。

关键词 [无线传感器网络](#) [协同通信](#) [节点选择](#) [自适应协同](#)

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An Energy-efficient Adaptive Cooperative Node Selection Scheme in WSN

Zhang Yu^{①②}, Cai Yue-ming^{①③}, Pan Cheng-kang^①, Xu You-yun^①

^①Department of Radio Communication of Institute of Communications Engineering, PLA University of Science and Technology, Nanjing 210007, China; ^②The 63rd Research Institute of the PLA General Staff Headquarters, Nanjing 210007, China;

^③National Mobile Communications Research Laboratory, Southeast University, Nanjing 210096, China

Abstract

An energy-efficient adaptive cooperative node selection scheme is proposed for energy-constrained wireless sensor networks. It determines the candidates of the Cooperative Node (CN) based on predetermined energy threshold, and then chooses the best node as the CN of Cluster Head Node (CHN) by considering the residual energy of the candidates as well as the channel state information. It can obtain the optimum energy threshold of different distances by minimizing the total energy consumption. Then the energy threshold is adaptively predetermined for minimizing the total energy consumption according to the distance between the CHN and the Data Fusion Center (DFC). The results of the theoretical analysis and simulation show that the proposed scheme can efficiently balance the transmission energy consumption and the circuit energy consumption so that it can efficiently reduce the total energy consumption, and can obtain the minimum of the total energy consumption.

Key words [Wireless Sensor Network \(WSN\)](#) [Cooperative communication](#) [Node selection](#) [Adaptive cooperation](#)

DOI:

通讯作者

作者个人主页

张余^{①②}; 蔡跃明^{①③}; 潘成康^①; 徐友云^①

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