电子与信息学报 2009 31 (1): 32-36 ISSN: 1009-5896 CN: 11-4494/TN

论文

无线传感器网络中基于有限反馈的协同MIMO策略

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收稿日期 2007-12-10 修回日期 2008-7-11 网络版发布日期 2009-2-19 接受日期

摘要
该文针对无线传感器网络中能量有限问题，提出了一种基于有限反馈的协同MIMO策略。该策略基于梯度算法，用1bit反馈来自动地调整簇头节点和协同簇头节点的发射功率。对无线传感器网络中基于有限反馈的Alamouti码的协同MISO系统的误码率进行了理论分析，推导了基于有限反馈Alamouti码的协同MISO策略能耗的契尔诺夫上限表达式。理论分析和仿真结果都表明，该文提出的协同MISO策略与基于标准Alamouti码的协同策略相比，无线传感器网络的总能耗更低，能效更高，且当簇头节点和协同簇头节点一直选择较好信道对应的节点来发送信息时，即最优策略，无线传感器网络的总能耗更低。

关键词 无线传感器网络 协同MISO Alamouti码 有限反馈

分类号 TN929.5

A Cooperative MIMO Scheme Based on Limited Feedback in WSNs

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Abstract
A limited feedback-based cooperative MIMO scheme is proposed to reduce the total energy consumption in Wireless Sensor Networks (WSNs). In this scheme based on the gradient algorithm, cluster head and cooperative cluster head can automatically adjust their power using one-bit feedback. For the cooperative MISO scheme based on Alamouti-code with limited feedback in WSNs, the bit-error-rate and the energy consumption is analyzed and its energy-consumption expression about Chernoff bound is derived. Analysis and numerical results show that the proposed cooperative MISO scheme consumes less energy than the cooperative MISO scheme based on standard Alamouti-code, and obtains high energy-efficiency. If the one is always chosen, which can provide better channel to transmit data, it will reduce more energy-consumption in WSNs.

Key words Wireless Sensor Networks (WSNs) Cooperative MISO Alamouti-code Limited feedback

DOI:

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