

## 基于蚁群算法的无线传感网络中心点融合算法研究

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基金项目：国家自然科学基金脉搏触觉信息检测及其与心电信号的融合研究

摘要：

建立级别梯度场是无线传感器网络中心点融合算法的重要组成部分。采用泛洪方法向外扩散梯度，会造成严重的能量消耗问题。为了节省传感器网络中的能量，将蚁群算法用于建立级别梯度场阶段，提出了基于蚁群算法的无线传感网络中心点融合算法。仿真实验验证了该方法的可行性。研究结果表明，基于蚁群算法的中心点融合算法可以显著地减少无线传感器网络的能量消耗，延长无线传感器网络的生命周期。

关键词：无线传感器网络；中心点融合；梯度场；蚁群算法

## Study on Center Aggregation in Wireless Sensor Networks Based on Ant Colony Algorithm

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**Abstract:**

Building gradient field is the important part of center aggregation algorithm in wireless sensor networks. It is found that flooding method using outward diffusion gradient will cause a serious power consumption issues. In order to save energy in wireless sensor networks, the ant colony algorithm is applied to the building gradient field. Then a center aggregation method based on ant colony algorithm is proposed. Simulation results verify the feasibility of the method. The results show that the center aggregation method based on ant colony algorithm can significantly reduce the energy consumption of wireless sensor networks, and prolong the life of wireless sensor networks.

**Keywords:** wireless sensor networks; center aggregation; gradient field; ant colony algorithm

投稿时间：2009-10-14

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