

## 一种面向无线传感器网络协同任务分配的动态联盟更新机制

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摘要：

在面向目标追踪等应用的无线传感器网络研究中, 协同任务分配机制的研究是很重要的。基于动态联盟机制的协同任务分配方法是事件触发的, 适用于任务出现频率相对较低的大规模无线传感器网络。本文在基于动态联盟机制研究的基础上, 首先引入了联盟覆盖范围和休眠盟员的概念, 进一步消除针对同一任务的检测传感器节点的冗余, 降低系统的能量消耗; 而后又给出了一种动态联盟的更新机制, 以保证动态联盟执行任务时的连续性, 在一定程度上保证网络的检测性能。最后通过仿真, 从系统总能耗、目标捕获率和检测误差标准差等方面检验了算法的性能, 并给出了缓冲带宽度等参数对能耗和网络检测性能的影响。

关键词：无线传感器网络, 协同任务分配, 动态联盟机制, 休眠盟员, 联盟更新机制

## an updating scheme of the working dynamic coalition for collaborative task allocation in wireless sensor networks

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**Abstract:**

The research of collaborative task allocation is an important part in the study of wireless sensor networks which orient the application of target tracking and so on. Different allocation schemes can affect the performance and energy consumption to a great extent. The dynamic-coalition-based task allocation scheme is applicable to the wireless sensor networks with infrequent tasks. To improve the dynamic-coalition-based task allocation scheme, this paper introduces the concept of the cover area of the dynamic coalition and the sleeping member in the dynamic coalition to get rid of more redundant working nodes to save more energy. Further more, a updating scheme of the working dynamic coalition in the collaborative task allocation with the cushion band updating program to perform the re-allocation of the task is proposed. The succession of the task execution is assured to obtain better performance. The efficiency of the scheme is proved in the simulation. And the impact of the width of cushion ring in the mobiling dynamic coalition scheme is simulated also.

**Keywords:** wireless sensor networks, collaborative task allocation, dynamic coalition scheme, sleeping member, the updating scheme of the dynamic coalition

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