

## WSN中基于粒子滤波的入侵检测算法实现

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摘要：

安全问题已经成为无线传感器网络进一步发展和应用的障碍之一。文章提出了一种基于粒子滤波算法的入侵检测技术，该方案利用LEACH算法对无线传感器网络节点进行分簇，通过粒子滤波算法对簇内节点的数据流量情况进行检测，发现其中的异常节点，并利用MATLAB仿真工具对节点的反应灵敏度进行仿真。结果表明，算法计算得出的异常检测率维持在0.48到0.7之间，检测系统处于一种较为稳定的状态，粒子滤波能够较好的运用到WSN的入侵检测系统中。

关键词：无线传感器网络;网络安全;入侵检测;粒子滤波;检测率

## The Realization of Intrusion Detection Technology Based on Particle Filtering Algorithm in WSN

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**Abstract:**

The security problem has become one of the obstacles about further development in wireless sensor networks. This paper proposed an intrusion detection technique which based on particle filtering algorithm. The program used LEACH algorithm to cluster the wireless sensor network node and used the particle filter algorithm to detect the nodes' data traffic of cluster. Then found the abnormal node and used the MATLAB to simulate for detection rate of node. The simulation results show that the anomaly detection rate was maintained between 0.5 and 0.7 by the particle filter algorithm and the detection system maintains a more stable state. So the particle filter can be better applied to the intrusion detection system in WSN.

**Keywords:** Wireless Sensor Networks; Network Security; Intrusion Detection; Particle Filter; Detection Rate

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