

## 基于EKF算法的无线传感器网络定位求精研究

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摘要：

无线传感器网络中，基于RSSI测距技术的定位系统误差较大。本文对扩展卡尔曼滤波（EKF）算法在抑制测距误差和提高定位精度方面进行了深入的研究。同文根据EKF算法在WSN节点定位中的两种应用方式，以收敛概率和精度为指标，在各种拓扑条件下对节点定位求精过程进行了分类探讨。最后结合仿真阐述了算法的适用范围，并分析了影响算法性能的因素。

关键词：无线传感器网络；定位；扩展卡尔曼滤波；RSSI

## Research on EKF-based Localization Refinement in Wireless Sensor Networks

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**Abstract:**

Distance measurement causes large error in RSSI-based localization technique in wireless sensor networks. In order to improve the precision of node localization, extended kalman filter algorithm is introduced to restrain the calculation error. Two ways of application of EKF in WSN is pointed out in this paper, as well as all kinds of situations may occur in the process of localization refinement with convergence probability and precision as indexes. Applicable situations of EKF is then analyzed via simulation, and factors that may influence the performance of EKF is discussed at last.

**Keywords:** wireless sensor networks; localization; EKF; RSSI

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