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基于拥塞控制的无线传感网蚁群最优化路由协议

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Ant Colony Optimization Routing Based on Congestion Control in WSNs

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摘要 无线传感网络（wireless sensor network，WSN）存在网络拥塞问题，并且网络的拥塞会造成丢包和能量的急剧损耗.针对网络拥塞问题，在高效节能蚁群路由(energy-efficient ant-based routing，EEABR)算法的基础上，提出基于拥塞控制的EEABR路由协议的改进的EEABR(improved EEABR，IEEABR)算法，该算法的核心是利用媒体访问控制（media access control，MAC）层上的包队列长路信息作为衡量拥塞度的标准，并作为寻找最优路径的判据之一.仿真结果表明，该算法具有投递率高和端到端时延小的特点，适合作为WSN的路由协议.

关键词： 无线传感网络 拥塞信息 高效节能蚁群路由 改进的EEABR

Abstract： Wireless sensor network (WSN) suffer from the problems of congestion, leading to packet loss and excessive energy consumption. This paper propose an improved energy-efficient ant-based routing (IEEABR) algorithm to find optimization path by taking into account the packet queue length of media access control (MAC) layer, which is the degree of congestion information. Simulation results show that IEEABR has several features such as high packet delivery ratio, low overall latency and high throughput, therefore is suitable for WSN routing protocol.

Keywords： wireless sensor network (WSN), congestion information, energy-efficient ant-based routing (EEABR), improved EEABR (IEEABR)

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