自适应果蝇优化算法在 WSN 节点覆盖优化中的应用

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摘　要：为了解决无线传感器网络（WSN）的覆盖优化问题，提出了一种自适应果蝇优化算法.该算法在原迭代步长算子的基础上增加了自适应能力，并针对后期最优解连续几代没有变化的情况，提出了利用降维、增大步长的方法来提高收敛精度，使算法在具有很强的全局优化性能的同时又不易陷入局部最优，可以快速并高效的实现 WSN 网络节点布局优化，得到更高的网络覆盖率.通过仿真实验对比，可以看出本文提出的自适应果蝇优化算法，在寻优性能方面不仅优于原始的果蝇算法，与其他的改进算法相比也有一定的优势.

关键词：WSN；果蝇算法；覆盖优化；自适应

Application of Adaptive Fruit Fly Optimization Algorithm in WSN Node Coverage Optimization

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Abstract： In order to solve the problem of wireless sensor network (WSN) coverage optimization, an adaptive fruit fly optimization algorithm was proposed. The algorithm increases the self-adaptive ability on the basis of the original iterative step operator, and proposes the method of reducing the dimension and increasing the step size to improve the convergence accuracy for the case where the subsequent optimal solution does not change for several consecutive generations. With strong global optimization performance, it is not easy to fall into local optimum, and the layout optimization of the WSN network node can be implemented quickly and efficiently, resulting in higher network coverage. Through the comparison of simulation experiments,it is proved that the adaptive fruit fly optimization algorithm proposed in this paper is not only better than the original fruit fly algorithm in the optimization performance, but also has certain advantages compared with other improved algorithms.

Key words： WSN; drosophila algorithm; coverage optimization

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