

研究、探讨

## 求解自适应组合优化蚁群算法的研究

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**摘要** 传统的组合优化蚁群算法在求解过程中要消耗大量的时间, 极易陷入局部最优化求解等弊端, 同时还会产生大量无用的冗余迭代代码, 运算效率低。对此, 提出了自适应组合优化蚁群算法。通过对改变信息素的迭代、参数选择的分析和增加对信息素局部更新方式, 提高了整个系统运算速度及收敛速度, 扩充了优化的范围, 克服了无用迭代代码的产生, 减少了停滞现象的出现。通过该算法对旅行商问题进行仿真实验, 其结果表明了该算法的可行性和有效性。

**关键词** [蚁群算法](#) [自适应](#) [组合优化](#) [信息素](#) [旅行商问题](#)

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## Research on solution to adaptive ant colony algorithm of combinatorial optimization

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### Abstract

It costs large quantity of time and tends to be trapped into local optimizing computation by using traditional ant colony algorithm of combinatorial optimization in the process of computing. Besides, it also causes much useless redundant iterated codes and leads to low efficiency. In order to solve these problems, an adaptive algorithm of combinatorial optimization is proposed in this paper. Through the ways of changing the iteration of pheromones, analyzing the selection of parameters and increasing the partial update modes of pheromones, the overall computing efficiency and convergence rate is enhanced and the scope of optimization is expanded. What's more, it decreases the useless iterated codes and occurrence of stagnation the simulation experiment of the combinatorial optimization on Traveling Salesman Problem proves the feasibility and validity of this algorithm.

**Key words** [Ant Colony Optimization](#) [adaptive](#) [combinatorial optimization](#) [pheromone](#) [Traveling Salesman Problem](#)

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