

学术探讨

生产调度优化问题文化进化算法研究

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摘要 许多生产调度优化问题属于NP-hard问题, 其求解通常采用智能启发式算法。基于文化算法及文化进化思想设计的文化进化算法, 通过上层文化空间的经验知识指导下层个体进化搜索的方向及步长, 通过模拟人类社会文化进化的机制实现文化空间的进化与更新, 最后将算法应用到置换Flow shop问题的求解, 用Matlab编程仿真测试, 结果表明此算法解决生产调度优化问题是可行的, 而且其全局搜索性能优于一种改进的GA算法。

关键词 [调度优化问题](#) [文化进化算法](#) [Flow shop调度问题](#)

分类号

Research on Cultural Evolutionary Algorithms applied to scheduling optimization problems

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Abstract

Most of scheduling optimization problems are NP-hard problems, many heuristic algorithms are developed in the search of best results. Cultural Evolutionary Algorithms, based on the mechanism of cultural evolution and Cultural Algorithms, guide the direction and step of individuals in the search, by using the knowledge of cultural space. At the same time, the top cultural space is evolving and updating. Then CEA are applied to Flow shop problems. The algorithm is tested with Matlab simulation, and the result shows that CEA are effective in scheduling optimization problems and much better than GA.

Key words [scheduling optimization problems](#) [Cultural Evolutionary Algorithms \(CEA\)](#) [Flow shop problem](#)

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