计算机工程与应用 2009 45 (30): 224-226 ISSN: 1002-8331 CN: 11-2127/TP

工程与应用

柔性Flow-Shop调度的遗传算法优化

周辉仁[1]，唐万生[1]，魏颖辉[2]

1.天津大学 电气与自动化工程学院，天津 300072
2.辽宁科技学院 管理系，辽宁 本溪 117022

收稿日期 2008-11-24 修回日期 2009-2-10 网络版发布日期 2009-11-6 接受日期

摘要 柔性Flow-shop调度问题（Flexible Flow-shop Scheduling Problem，FFSP）是一般Flow-shop调度问题的推广，由于在某些工序上存在并行机器，所以比一般的Flow-shop调度问题更复杂。为了有效地解决柔性Flow-shop调度问题，用遗传算法求解，给出了一种改进的编码方法，能够保证个体的合法性；并根据编码方法提出了矩阵解码方法。最后以某汽车发动机厂金加工车间的生产调度实例进行仿真，通过比较表明了算法的有效性。

关键词 柔性Flow-shop调度 遗传算法 编码方法 矩阵解码

分类号 TP278

Optimize flexible flow-shop scheduling using genetic algorithm

ZHOU Hui-ren[1]，TANG Wan-sheng[1]，WEI Ying-hui[2]

1.School of Electrical Engineering & Automation，Tianjin University，Tianjin 300072，China
2.Department of Management，Liaoning Institute of Science and Technology，Benxi，Liaoning 117022，China

Abstract

Flexible Flow-shop Scheduling Problem（FFSP） is expansion of general flow-shop scheduling problem.It is more complex than general flow-shop scheduling problem because there are parallel machines on some operations.In order to efficiently solve this problem，a new method solving flexible flow-shop scheduling problem based on genetic algorithm is proposed.A new improved encoding and decoding with matrix method for the flexible flow-shop scheduling problem are proposed.These operators can easily keep the feasibility of solution.Finally，an example of production scheduling problem for metalworking workshop in a car engine plant is simulated.Through comparison，the results show the effectiveness of the algorithm.

Key words flexible flow-shop scheduling genetic algorithm encoding method decoding with matrix form

DOI: 10.3778/j.issn.1002-8331.2009.30.066

通讯作者 周辉仁