

## 基于改进??学习的知识化制造自适应动态调度策略

王玉芳<sup>1,2</sup>, 严洪森<sup>1</sup>

1. 东南大学a. 复杂工程系统测量与控制教育部重点实验室, b. 自动化学院, 南京210096 ;  
2. 南京信息工程大学自动化系, 南京210044

## Adaptive dynamic scheduling strategy in knowledgeable manufacturing based on improved ??-learning

WANG Yu-fang<sup>1,2</sup>, YAN Hong-sen<sup>1</sup>

1a. MOE Key Laboratory of Measurement & Control of Complex Systems of Engineering , b. School of Automation , Southeast University , Nanjing 210096 China ;  
2. Department of Automation , Nanjing University of Information Science & Technology , Nanjing 210044 , China .

[摘要](#)
[图/表](#)
[参考文献\(13\)](#)
[相关文章\(15\)](#)
全文: [PDF](#) (264 KB) [HTML](#) (1 KB)输出: [BibTeX](#) | [EndNote](#) (RIS)

## 摘要

针对知识化制造系统生产环境的不确定性, 构建一个基于多Agent 的知识化动态调度仿真系统. 为了保证设备Agent 能够根据当前的系统状态选择合适的中标作业, 提出一种基于聚类-动态搜索的改进??学习算法, 以指导不确定生产环境下动态调度策略的自适应选择, 并给出算法的复杂性分析. 所提出的动态调度策略采用顺序聚类以降低系统状态维数, 根据状态差异度和动态贪婪搜索策略进行学习. 通过仿真实验验证了所提出动态调度策略的适应性和有效性.

**关键词** : 知识化制造, 自适应, 动态调度, 基于聚类-动态搜索的改进??学习算法, 多Agent

## Abstract :

Aiming at the uncertainty of the production environment in knowledgeable manufacturing system, a dynamic scheduling simulation system based on the multi-agent is built. To ensure that the machine agent can select the appropriate bid job based on the current system status, the improved ??-learning based on clustering-dynamic search(CDQ) algorithm is presented, which is used to guide the adaptive selection of dynamic scheduling strategy in the uncertain production environment, and the complexity analysis of the algorithm is given. The dynamic scheduling strategy adopts the method of the sequence clustering to reduce the dimension of system state and learns according to status different degree and the dynamic greed search strategy. Simulation experiments verify the adaptability and effectiveness of the dynamic scheduling strategy.

**Key words** : knowledgeable manufacturing self-adaptive dynamic scheduling CDQ algorithm multi-Agent

收稿日期: 2014-08-24 出版日期: 2015-10-14

ZTFLH: TH165

## 基金资助:

国家自然科学基金重点项目(60934008) ; 中央高校基本科研业务费专项资金项目(2242014K10031).

通讯作者: 王玉芳 E-mail: qing\_0325@163.com

作者简介: 王玉芳(1979), 女, 博士生, 从事知识化制造系统的研究; 严洪森(1957), 男, 教授, 博士生导师, 从事知识化制造、生产计划与调度等研究.

## 引用本文:

王玉芳 严洪森. 基于改进??学习的知识化制造自适应动态调度策略[J]. 控制与决策, 2015, 30(11): 1930-1936. WANG Yu-fang YAN Hong-sen. Adaptive dynamic scheduling strategy in knowledgeable manufacturing based on improved ??-learning. Control and Decision, 2015, 30(11): 1930-1936.

## 链接本文:

<http://www.kzyjc.net:8080/CN/10.13195/j.kzyjc.2014.1308> 或 <http://www.kzyjc.net:8080/CN/Y2015/V30/I11/1930>

## 服务

- ▶ [把本文推荐给朋友](#)
- ▶ [加入我的书架](#)
- ▶ [加入引用管理器](#)
- ▶ [E-mail Alert](#)
- ▶ [RSS](#)

## 作者相关文章

- ▶ [王玉芳 严洪森](#)