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动态评价免疫微粒群算法在Job-shop调度中的应用

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摘要

传统粒子群优化算法在解决组合优化问题上具有一定的局限性，通过分析其优化机理，对迭代公式加以改进，提出了改进微粒群算法。算法中，利用遗传算法的交叉思想来完成粒子间的信息交换，以期达到粒子更新。粒子进化过程中，为保留群体中的优秀粒子，使用了加速度这一优化算子。为避免粒子陷入局部搜索，迭代过程中使用免疫算法来动态评价微粒群体。通过大量实验仿真，算法可以有效求解作业车间调度问题，验证了算法的合理性。

关键词 微粒群优化 免疫 作业车间调度

分类号

Dynamic evaluated immune Particle Swarm Optimization for Job-shop scheduling

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Abstract

Traditional Particle Swarm Optimization（PSO） has some limitation to solve the combinatorial optimization problems.An Improved Particle Swarm Optimization（IPSO） by improving the iterative formula is proposed after analyzing the optimization mechanism of the PSO.In IPSO，to update the particles，the crossover idea of genetic algorithm is utilized by particles to exchange information.To keep excellent particle in the course of evolution，the optimization operator of acceleration is proposed and utilized.Particles are evaluated dynamically by immune algorithm in the course of evolution in order to avoid getting into the local search.The experimental results show that JSP Can be solved by IPSO effectively.The rationality of IPSO is validated.

Key words Particle Swarm Optimization immunity Job-shop scheduling

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