Application of Ant Colony in Flowshop Scheduling with Unrelated Parallel Machine

林熙凱、駱景堯

E-mail: 9423578@mail.dyu.edu.tw

ABSTRACT

In this research, Ant colony optimization (ACO) heuristics are applied to solve a flowshop scheduling problem with unrelated parallel machines. The objective is to minimize the mean flow time. Some restrictions such as independent setup, processing and dependent removal times are taken into account as well. Two kinds of ACO based heuristics are proposed for solving the addressed scheduling problem. The performances of the proposed heuristics are compared with an existing heuristic, simulated annealing, in various manufacturing environments. The computational experiments show that the ACO2 heuristic performs well on both solution quality and efficiency.

Keywords : Ant colony optimization ; unrelated parallel machine ; dependent removal time ; independent setup time

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