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Heuristic for Scheduling Correlated Parallel Machine to Minimize Maximum Lateness and Total Weighed Completion Time

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Abstract : This research focuses on the bicriteria correlated parallel machine scheduling problem. The two objective functions considered in this problem are to minimize maximum lateness and total weighted completion time. We first present a mixed integer programming (MIP) model that can find the entire efficient frontier for the studied problem. Next, we have proposed a bicriteria heuristic that can find non-dominated solutions for the studied problem. The performance of the proposed bicriteria heuristic is compared with the efficient frontier generated by solving the MIP model. Computational results indicate that the proposed bicriteria heuristic can solve the problem efficiently and find a set of diverse solutions that are uniformly distributed along the efficient frontier.

Keywords : bicriteria, correlated parallel machines, heuristic, scheduling
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