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Multi-Objective Variable Neighborhood Search Algorithm to Solving Scheduling Problem with Transportation Times

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Abstract : This paper deals with a bi-objective hybrid no-wait flowshop scheduling problem minimizing the makespan and total weighted tardiness, in which we consider transportation times between stages. Obtaining an optimal solution for this type of complex, large-sized problem in reasonable computational time by using traditional approaches and optimization tools is extremely difficult. This paper presents a new multi-objective variable neighborhood algorithm (MOVNS). A set of experimental instances are carried out to evaluate the algorithm by advanced multi-objective performance measures. The algorithm is carefully evaluated for its performance against available algorithm by means of multi-objective performance measures and statistical tools. The related results show that a variant of our proposed MOVNS provides sound performance comparing with other algorithms.

Keywords : no-wait hybrid flowshop scheduling; multi-objective variable neighborhood algorithm; makespan; total weighted tardiness
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