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A Dynamic Heuristic for the Stochastic Unrelated Parallel Machine Scheduling Problem

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Abstract—This paper addresses the problem of batch scheduling in an unrelated parallel machine environment with sequence dependent setup times and an objective of minimizing the total weighted mean completion time. The jobs' processing times and setup times are stochastic for better depiction of the real world. This is a NP-hard problem and in this paper, new heuristics are developed and compared to existing ones using simulation. The results and analysis obtained from the computational experiments proved the superiority of the proposed algorithm *PMWP* over the other algorithms presented.

Keywords—Simulation, Setup time, Unrelated parallel machine, Stochastic times, Heuristics

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