

## عنوان مقاله:

Study of Buffer Effects on the Grouping Efficacy Measure of Stochastic Cell Formation Problem

## محل انتشار:

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## خلاصه مقاله:

This paper deals the stochastic cell formation problem (SCFP) and presents a new nonlinear integer programming model for the SCFP in which the effect of buffer size on the grouping efficacy of cells has been investigated. The objective function is the maximization of the grouping efficacy of cells. A chance constraint is applied to explore the effect of buffer on the SCFP. Processing time and arrival time of the part for each cell are considered stochastic which follow exponential probability distribution. To find the optimal solution in a reasonable time, a heuristic approach is used to linearize the proposed nonlinear model. This problem has been known as an NP-hard problem. Therefore, two metaheuristic methods, namely genetic algorithm and particle swarm optimization, are employed to solve examples. The parameters of the algorithms are calibrated using Taguchi and full factorial methods, and the performances of the algorithms in the examples of various sizes are analyzed against global solutions obtained from Lingo software's branch and bound (B&B) in terms of quality of solutions and computational time.

## کلمات کلیدی:

stochastic cell formation problem, grouping efficacy measure, metaheuristic

## لینک ثابت مقاله در پایگاه سیویلیکا:

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