

Staggemeier A, Clark A and Aickelin U (2002): "A hybrid genetic algorithm to solve a lot-sizing and scheduling problem ", in *Sixteenth triennial conference of the International Federation of Operational Research Societies*, Edinburgh, UK, 2002.

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Topic Item 1: Metaheuristics and Tabu search

Topic Item 2: Inventory

Topic Item 3: Scheduling and timetable

**Abstract Title: A hybrid genetic algorithm to solve a lot-sizing and scheduling problem**

Abstract: This paper reports a lot-sizing and scheduling problem, which minimizes inventory and backlog costs on  $m$  parallel machines with sequence-dependent set-up times over  $t$  periods. Problem solutions are represented as product subsets ordered and/or unordered for each machine  $m$  at each period  $t$ . The optimal lot sizes are determined applying a linear program. A genetic algorithm searches either over ordered or over unordered subsets (which are implicitly ordered using a fast ATSP-type heuristic) to identify an overall optimal solution. Initial computational results are presented, comparing the speed and solution quality of the ordered and unordered genetic algorithm approaches.