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EDITORIAL
SPECIAL ISSUE ON COOPERATIVE METHODS FOR MULTIOBJECTIVE OPTIMIZATION

Facing applications that require the resolution of optimization problems of unceasingly increasing size and this within increasingly short time, only very efficient methods would lead to satisfactory solutions. Hence the implementation of advanced methods resulting from combinatorial optimization, artificial intelligence, machine learning and other fields, can offer a good answer. Moreover, the use of parallelism and distribution may be useful to explore efficiently very large search spaces.

In addition, to complicate matters, many real-world situations lead to problems that have several conflicting objectives, which typically cannot be optimized with a unique solution. Hence, in multiobjective optimization, solution procedures are designed to search for a good approximation of the Pareto optimal set.

Even if evolutionary algorithms have become one of the most prominent classes of metaheuristics for tackling multiobjective optimization problems, the hybridization of several types of metaheuristics may lead to the design of efficient algorithms. This is the work presented in the first paper of this special issue, where a memetic algorithm (a genetic algorithm in which the mutation operator is replaced by a local search procedure) is proposed.

Moreover, other methods or approaches may also contribute to an efficient way to deal with such hard problems. In this context, the second paper of this special issue deals with the hybridization of a multi-agent approach and an evolutionary algorithm.

Such other approaches may comprise exact methods. Exact multiobjective methods are limited in term of size of the problems they can solve. But the hybridization of an exact procedure within a metaheuristic allows improving the exploration capacity of metaheuristics as well as the intensification ability of exact methods. This is the aim of the third paper of the special issue.

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The three papers accepted for this special issue are:

- MEMOTS: A memetic algorithm integrating Tabu search for combinatorial optimization problems, by Thibaut Lust and Jacques Teghem.
- Combination of mobile agent and evolutionary algorithm to optimize the client transport service, by Hayfa Zgaya, Slim Hammadi and Khaled Ghédira
- Combining evolutionary algorithms and exact approaches for multi-objective knowledge discovery, by Mohammed Khabzaoui, Clarisse Dhaenens and El-Ghazali Talbi.

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