Editorial

Special Issue on New Advances in Metaheuristics

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Metaheuristics are general purpose heuristic methods for solving a large class of computational problems. Recently some new algorithms have appeared as particle swarm, honey bees algorithms, artificial immune systems. The main goal of this special issue is to report new advances of bioinspired algorithms in order to provide a recent snapshot for the community. This special issue of the Journal of Mathematical Modelling and Algorithms (JMMA) contains selected articles presented at the META'10 conference held in October 27th–31th, 2010, in Djerba Island, Tunisia. The articles are original research papers that focus on both theoretical aspect (fitness landscape) and academic and real-life applications (puzzle game, long-term car pooling problem, container loading problem or permutation flowshop scheduling problem).

The first paper by M-E. Marmion, L. Jourdan and C. Dhaenens proposes to study links between properties of the landscape and efficiency of methods on a variant of the vehicle routing problem. The work shows interesting relations between results of the landscape analysis and results of methods performance.

In the second paper of the special issue, by T. Wauters, W. Vancroonenburg, G. Vanden Berghe introduces a new guide-and-observe hyper-heuristic approach to optimising Eternity II-like puzzles. This algorithm was the winner of the contest on Eternity II proposed in the META'10 conference.

The paper by Y. Guo and G. Goncalves presents AGA, a new multi-agent based self-adaptive genetic algorithm to solve the long-term car pooling problem. AGA is competitive with some of the most powerful heuristics of the literature.

In the next paper of the special issue, H. Hasni and S. Houssein presents a new hybrid genetic algorithm for solving the container loading problem in the general

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case, precisely when the boxes have no orientation constraints. The comparison with literature proves the high performance of the proposed metaheuristic.

Finally, the last paper of the issue by E. Dhouib, J. Teghem and T. Loukil studies the permutation flowshop scheduling problem with sequence dependent setup times and time lags constraints minimizing the number of tardy jobs. The proposed approaches give interesting results with very low computing time.

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