عنوان مقاله:

Combinatorial optimization of permutation-based quadratic assignment problem using optics inspired optimization

محل انتشار:

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خلاصه مقاله:

A lot of real-world problems such as the assignment of special rooms in hospitals, operating room layout, image processing, etc., could be formulated in terms of Quadratic assignment problem. Different exact methods are suggested to solve these problems, but because of the special structure of these problems, by increasing the size of the problem, finding an exact solution become more complicated and even impossible. So, employing meta-heuristic algorithms is inevitable, due to this problem we use optics inspired optimization (OIO) in this paper. The obtained results and its comparison with the solutions of the central library of Quadratic assignment problem (QAPLIB) show that the proposed algorithm can exactly solve small-sized problems with ۱۰۰% efficiency while the efficiency of medium-to-large size instances is ۹۶%. Accordingly, one can conclude that the proposed OIO has generally high efficiency for solving permutation-based problems.

کلمات کلیدی:

Quadratic assignment problem, Optics inspired optimization, NP-complete, Metaheuristics