



# An iterated local search algorithm for the minimum differential dispersion problem

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Mots-clés	combinatorial optimization [3], Dispersion problems [4], Heuristics [5], iterated local search [6], Three phase search [7]
Résumé en anglais	<p>Given a set of <math>n</math> elements separated by a pairwise distance matrix, the minimum differential dispersion problem (Min-Diff DP) aims to identify a subset of <math>m</math> elements (<math>m &lt; n</math>) such that the difference between the maximum sum and the minimum sum of the inter-element distances between any two chosen elements is minimized. We propose an effective iterated local search (denoted by ILS_MinDiff) for Min-Diff DP. To ensure an effective exploration and exploitation of the search space, ILS_MinDiff iterates through three sequential search phases: a fast descent-based neighborhood search phase to find a local optimum from a given starting solution, a local optima exploring phase to visit nearby high-quality solutions around a given local optimum, and a local optima escaping phase to move away from the current search region. Experimental results on six data sets of 190 benchmark instances demonstrate that ILS_MinDiff competes favorably with the state-of-the-art algorithms by finding 131 improved best results (new upper bounds).</p>
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## Liens

[1] <http://okina.univ-angers.fr/publications?f%5Bauthor%5D=26864>

[2] <http://okina.univ-angers.fr/jinkao.hao/publications>

[3] <http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=8860>

- [4] <http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=23001>
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- [10] <http://www.sciencedirect.com/science/article/pii/S0950705117301582>

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