



# General swap-based multiple neighborhood tabu search for the maximum independent set problem

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Mots-clés	Maximum independent set; Maximum clique; Multiple neighborhoods; Local search; Tabu search [3]
Résumé en anglais	<p>Given a graph <math>G=(V,E)</math>, the Maximum Independent Set problem (MIS) aims to determine a subset <math>S \subseteq V</math> of maximum cardinality such that no two vertices of <math>S</math> are adjacent. This paper presents a general Swap-Based Tabu Search (SBTS) for solving the MIS. SBTS integrates distinguished features including a general and unified <math>(k,1)</math>-swap operator, four constrained neighborhoods and specific rules for neighborhood exploration. Extensive evaluations on two popular benchmarks (DIMACS and BHOSLIB) of 120 instances show that SBTS attains the best-known results for all the instances. To our knowledge, such a performance was not reported in the literature for a single heuristic. The best-known results on 11 additional instances from code theory are also attained.</p>
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## Liens

[1] [http://okina.univ-angers.fr/publications?f\[author\]=10748](http://okina.univ-angers.fr/publications?f[author]=10748)

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

[3] [http://okina.univ-angers.fr/publications?f\[keyword\]=10919](http://okina.univ-angers.fr/publications?f[keyword]=10919)

[4] <http://okina.univ-angers.fr/publications/ua7074>

[5] <http://dx.doi.org/10.1016/j.engappai.2014.08.007>

