A multiple search operator heuristic for the max-k-cut problem

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Résumé en anglais	The max-k-cut problem is to partition the vertices of an edge-weighted graph G=(V,E) into k≥2 disjoint subsets such that the weight sum of the edges crossing the different subsets is maximized. The problem is referred as the max-cut problem when k=2. In this work, we present a multiple operator heuristic (MOH) for the general max-k-cut problem. MOH employs five distinct search operators organized into three search phases to effectively explore the search space. Experiments on two sets of 91 well-known benchmark instances show that the proposed algorithm is highly effective on the max-k-cut problem and improves the current best known results (lower bounds) of most of the tested instances for k∈[3,5]. For the popular special case k=2 (i.e., the max-cut problem), MOH also performs remarkably well by discovering 4 improved best known results. We provide additional studies to shed light on the key ingredients of the algorithm.
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Liens

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[8] http://okina.univ-angers.fr/publications/ua15265
[9] http://dx.doi.org/10.1007/s10479-016-2234-0