Path relinking for the vertex separator problem

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Mots-clés	graph partitioning [4], Path relinking [5], Population-based heuristics [6], Vertex separator [7]
Résumé en anglais	This paper presents the first population-based path relinking algorithm for solving the NP-hard vertex separator problem in graphs. The proposed algorithm employs a dedicated relinking procedure to generate intermediate solutions between an initiating solution and a guiding solution taken from a reference set of elite solutions (population) and uses a fast tabu search procedure to improve some selected intermediate solutions. Special care is taken to ensure the diversity of the reference set. Dedicated data structures based on bucket sorting are employed to ensure a high computational efficiency. The proposed algorithm is assessed on four sets of 365 benchmark instances with up to 20,000 vertices, and shows highly comparative results compared to the state-of-the-art methods in the literature. Specifically, we report improved best solutions (new upper bounds) for 67 instances which can serve as reference values for assessment of other algorithms for the problem.
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[2] http://okina.univ-angers.fr/publications?f%5Bauthor%5D=26865
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