

A parallel multi-neighborhood cooperative Tabu search for Capacitated Vehicle Routing Problem

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Abstract

Among the latest metaheuristic algorithms for the vehicle routing problem, many use multiple neighborhoods. In these methods, multiple neighborhoods are used in serial fashion, one after another following either a fixed or randomized sequence. This talk presents a parallel Tabu search algorithm that utilizes several different neighborhood structures in parallel manner. Single neighborhood or neighborhood combinations are encapsulated in Tabu search threads and they cooperate through a solution pool for the purpose of exploiting their joint power. The computational experiments on two sets of large scale benchmark instances show that the proposed method is highly effective and competitive. New best solutions to several instances have been identified.