
Polynomial-Time Approximation Schemes for a Class of Integrated Network Design and Scheduling Problems with Parallel Identical Machines

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Abstract

In the integrated network design and scheduling problem (INDS-P), we are asked to repair edges in a graph by using parallel machines so that the performance of the network is recovered by a certain level, and the objective is to minimize the makespan required to finish repairing edges. The main aim of this paper is to show that polynomial-time approximation schemes exist for some class of the problem (INDS-P), including the problems associated with minimum spanning tree, shortest path, maximum ow with unit capacity, and maximum-weight matching.

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