

VORTRAG

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Decomposition Approaches for a Capacitated Hub Location Problem

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Abstract

In this work we address a problem consisting of determining the routes and the hubs to be used in order to send, at minimum cost, a set of commodities from sources to destinations in a given capacitated network. The capacities and costs of the arcs and hubs are given, and the arcs connecting the hubs are not assumed to create a complete graph. We present a mixed integer linear programming formulation and describe two branch-and-cut algorithms based on decomposition techniques. We evaluate and compare these algorithms, and we show that a Double Benders' Decomposition approach outperforms the standard Benders' Decomposition, which has been widely used in recent articles on similar problems. For large instances we propose a heuristic approach based on a linear programming relaxation of the mixed integer model.