

All or Nothing Demand Packing Problems

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Abstract

We consider some well known combinatorial packing problems where the items being packed come together with integer demands and profits. Like the most special case, the knapsack problem, the profits are obtained only if the whole demand is packed. We discuss several such demand problems including one based on integer flows that was spawned by the (currently dormant) concept of bandwidth trading. We discuss approximation algorithms as well as describe a framework for analyzing and tightening linear formulations for general demand packing problems. joint work with C. Chekuri, M. Mydlarz and A. Vetta.