

Using λ -supermodularity in dual packing theory

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Abstract

We introduce the notion of λ -supermodular function and show that the deficiency function for the dual of a packing type problem is often λ -supermodular. Using this fact we conclude that the intersection of tight sets is tight.

We show that this technique leads to short proofs about several types of packing problems for minimax theorems and Gallai-Edmonds type structure theorems. Besides ordinary matching theory we show, as examples, that it is usable for induced star packing and for even factors in directed graphs introduced by Cunningham and Geelen.