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Extended formulations for matroid polytopes through randomized protocols. (English)

Summary: The hitting number of a polytope $P$ is the smallest size of a subset of vertices of $P$ such that every facet of $P$ has a vertex in the subset. We show that, if $P$ is the base polytope of any matroid, then $P$ admits an extended formulation of linear size on the hitting number of $P$. Our results generalize those of the spanning tree polytope given by Martin and Wong, and extend to polymatroids.

MSC:
90-XX Operations research, mathematical programming

Keywords:
extended formulations; matroids; matroid polytope; randomized protocol; radial cones; spanning tree polytope

Full Text: DOI

References:
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