

HYPERPLANE SECTIONS OF POLYTOPES

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We obtain a parametric, semialgebraic description of properties of the hyperplane sections of a polytope. Using this structure, we provide algorithms for the optimization of several combinatorial and metric properties over all hyperplane slices of a polytope. We report on their computational complexity, and explore some connections to constructions and problems in combinatorics and convex geometry.

Joint work with Marie-Charlotte Brandenburg (Max Planck Institute for Mathematics in the Sciences, Leipzig, Germany) and Jesús A. De Loera (University of California, Davis, USA).