

Counting polytopes

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Abstract

This talk will be an overview of the classical problem of estimating the number of combinatorial types of d -dimensional convex polytopes with n vertices, and its interactions with some of the milestones of combinatorial polytope theory. While in dimensions up to 3 we have a very good understanding on the asymptotic growth of the number of polytopes with respect to the number of vertices, in higher dimensions we only have coarse estimates. Upper bounds arise from results of Milnor and Thom from real algebraic geometry, whereas lower bounds are obtained with explicit constructions. I will present a recent construction giving the current best lower bounds for the number of polytopes, found in collaboration with Eva Philippe and Francisco Santos.

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