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The slack ideal of a polytope.

In this talk we discuss a new tool for studying the realization spaces of polytopes, namely the slack ideal associated to the polytope. We will look at the interplay between the algebraic properties of the ideal and the combinatorics of the polytope. In particular, we explain how the structure of this ideal encodes certain polytopal properties, gives us a new way to understand important concepts such as projective uniqueness, and suggests connections with the study of other algebraic and combinatorial objects (toric ideals and graphs, for example). (Received February 05, 2018)