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Weighted Pseudosphere Configurations and Grassmannians

Abstract for the Combinatorics Seminar 2017 May 9

I will introduce a space defined by weighted pseudosphere configurations that contains the Grassmannian as a subspace. In rank 3, I will show that the subspace of realizations of a fixed oriented matroid is contractible. This is in stark contrast with the Grassmannian where, by Mnëv's Universality theorem, the realization space of a rank 3 oriented matroid can have the homotopy type of any primary semialgebraic set. As long as time permits, I may present a strong deformation retraction from this space to the Grassmannian in rank 3.
