Workshop on Interactions Between
Algebraic Combinatorics and Algebraic Geometry
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Equivariant classes of matroid realization spaces

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Abstract

We will revisit theorems from school geometry (like Menelaus, Desargues, Pappus, etc) from the equivariant point of view. Namely, we will calculate equivariant cohomology classes represented by matroid realization spaces. We will discuss the meaning of these classes, and how they relate to the hierarchy of the spaces. Some enumerative geometry applications will be shown answering questions of the following type: let C_i $(i = 1 \dots 9)$ be generic curves of degree d_i in the plane, and Q a generic pont; how many Desargues configurations $(P_1, \dots, P_{10})$ exist such that P_i is on C_i, and $P_{10} = Q$? Joint work with L. Feher and A. Nemethi.