

Filtrations of tope spaces of oriented matroids

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Oriented matroids are matroids with extra sign data, and they are useful in the tropical study of real algebraic geometry. In order to study the topology of real algebraic/tropical hypersurfaces constructed from patchworking, Renaudineau and Shaw introduced an algebraically defined filtration of the tope spaces of oriented matroids (for a real hyperplane arrangement, the tope space is the homology of its complement) based on Quillen filtration. We will prove the equivalence of their filtration and the topologically defined Kalinin filtration, as well as the combinatorially defined Gelfand-Varchenko dual degree filtration.

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