1049-05-90   **Federico Ardila**, **Carolina Benedetti** and **Jeffrey Doker*** (`doker@math.berkeley.edu`), 1336
Shotwell St., San Francisco, CA 94110. *Volumes of matroid polytopes.*

We express the matroid polytope P_M of a matroid M as a signed Minkowski sum of simplices, and obtain a formula for the volume of P_M. This gives a combinatorial expression for the degree of an arbitrary torus orbit closure in the Grassmannian $Gr_{k,n}$. We then derive analogous results for the independent set polytope and the associated flag matroid polytope of M. Our proofs are based on a natural extension of Postnikov's theory of generalized permutohedra. (Received February 25, 2009)

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