1049-05-172 **Alexander Postnikov*** (apost@math.mit.edu), 77 Massachusetts Ave, Cambridge, MA 02139, and **Thomas Lam**, Cambridge, MA. *Polypositroids.*

Cells of the totally nonnegative Grassmannian correspond to a special class of matroids, called positroids. We investigate these matroids in terms of their matroid polytopes. We introduce a more general class of convex polytopes, which we call polypositroids. Polypositroids appear as moment polytopes of torus orbits in the affine Grassmannian. These polytopes have beautiful combinatorial properties. Polypositroids are related to generalized permutohedra, alcoved polytopes, triangulations of products of simplices. A typical polypositroid is the cyclohedron. There are possible relations with cluster algebras. This is a joint work with Thomas Lam. (Received March 02, 2009)