

Geometry Seminar  
Tuesday, September 8, 2009  
Room 202 WWH at 6:00 P.M.

# A characterization of simplicial polytopes with $g_2 = 1$

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Kalai proved that the simplicial polytopes with  $g_2 = 0$  are the stacked polytopes; these are the extremal examples in Barnette's lower bound theorem. We characterize the  $g_2 = 1$  case.

Moreover, the characterization we describe holds for any homology sphere with  $g_2 = 1$ , and our proof takes advantage of working with this larger class of complexes, using topological tools. The proof requires also a new result (and several old ones) about rigidity of graph frameworks. This is joint work with Eyal Novinsky.

For more information please visit the seminar website at:  
[http://www.math.nyu.edu/seminars/geometry\\_seminar.html](http://www.math.nyu.edu/seminars/geometry_seminar.html).