Geometry Seminar
April 29, 2008, Tuesday, 6:00 p.m.
Room 613, Courant Institute
251 Mercer Street, New York

Face enumeration on manifolds

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Abstract

In the over 100 years since the discovery of the Euler-Poincaré formula there have been tremendous advances in the understanding of the geometry and topology of manifolds. However, the enumerative properties of triangulations remain largely mysterious. For instance, there are no manifolds in dimension five or higher whose f-vector is completely understood.

We will provide a number of new results concerning face numbers of manifolds. In addition to new upper and lower bounds which depend on the topology of the underlying space, we will explain the relationship between the g-conjecture for spheres and an apparently more optimistic conjecture for all manifolds due to Kalai. Lastly, we will present a topological finiteness result for $g_2 = |edges| - (d+1)|vertices|$ - for d-manifolds. Some of this is joint work with Isabella Novik, U. of Washington, Seattle.

For further information contact {pach,pollack}@cims.nyu.edu, or visit our website: http://www.math.nyu.edu/seminars/geometry_seminar.html