Geometry Seminar
April 17, 2007, Tuesday, 6:00 p.m.
Room 613, Courant Institute
251 Mercer Street, New York

Skeleta of convex bodies

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Abstract

The skeletons of convex d-polytope have many possible properties; some trivial, some still open problems. These properties give rise to more difficult problems for general convex bodies. For example, it is known that the 1-skeleton of a convex d-polytope contains a refinement of the complete graph on $d+1$ vertices but this is unknown for general d-convex bodies for $d > 3$.

It is trivial that a k-shadow boundary (i.e. the shadow boundary in the direction of some k-flat) of a convex d-polytope has, almost always, finite $d-k-1$-measure. An old result of Ewald, Larman and Rogers shows that a k-shadow boundary of a convex d-body is, almost always, sharp. Peter Mani and I have recently showed that a k-shadow boundary of a convex d-body almost always has finite $d-k-1$-measure.

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