Geometry Seminar
October 5, 2004, Tuesday, 6:00 p.m.
Room 613, Courant Institute
251 Mercer Street, New York

Radii minimal projections of polytopes and constrained optimization of symmetric polynomials

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Abstract

We discuss a characterization of the radii minimal projections of polytopes onto j-dimensional subspaces in Euclidean space E^n. Applied on simplices this characterization allows to reduce the computation of an outer radius to a computation in the circumscribing case or to the computation of an outer radius of a lower-dimensional simplex. We use this characterization to determine the sequence of outer $(n-1)$-radii of regular simplices (which are the radii of smallest enclosing cylinders). This settles a question which arose from the incidence that a paper by Weißbach (1983) on this determination was erroneous.

(Joint work with Rene Brandenberg.)

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