Geometry Seminar
October 11, 2005, Tuesday, 6:00 p.m.
Room 613, Courant Institute
251 Mercer Street, New York

Helly type theorems, their topological analogs, and Leray complexes

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Abstract

Helly's theorem asserts that if a finite family of more than d convex sets in d-dimensional Euclidean space has the property that every $d+1$ of the sets have a point in common then all the sets in the family have a point in common. Helly himself found topological version for his theorem. Beautiful and deep extensions of Helly's theorem were proved in the following years and for some of those topological counterparts were found. I will describe some recent works and open problems in this direction. I will discuss especially the notion of Leray simplicial complexes which arises naturally in this context and related homological notions of "complexity". Some properties of Leray complexes will be discussed. Along some older results and problems, some new results with Roy Meshulam will be described.

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