Geometry Seminar
November 30, 2004, Tuesday, 6:00 p.m.
Room 613, Courant Institute
251 Mercer Street, New York

Double-permutation sequences and pseudoline transversals

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Abstract

We describe a new encoding of a family of mutually disjoint compact convex sets in the plane that captures many of its combinatorial properties, and use it to give a new proof of the Edelsbrunner-Sharir theorem that a collection of n compact convex sets in the plane cannot be met by straight lines in more than $2n-2$ combinatorially distinct ways. The encoding generalizes our encoding of point configurations by "allowable sequences" of permutations. Since it applies as well to a collection of compact connected sets with a specified pseudoline arrangement $\mathcal{A}$ of separators and double tangents, the result extends the Edelsbrunner-Sharir theorem to the case of geometric permutations induced by pseudoline transversals compatible with $\mathcal{A}$. This is joint work with Ricky Pollack.

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