Geometry Seminar
September 27, 2005, Tuesday, 6:00 p.m.
Room 613, Courant Institute
251 Mercer Street, New York

On the Chromatic Number of Some Geometric Hypergraphs

Shakhar Smorodinsky
Courant Institute, NYU

Abstract

A finite family $\mathbf{R}$ of simple Jordan regions in the plane defines a hypergraph $H = H(\mathbf{R})$ where the vertex set of H is $\mathbf{R}$ and the hyperedges are all subsets $S \subset \mathbf{R}$ for which there is a point p such that $S = \{r \in \mathbf{R} | p \in r\}$. The chromatic number of $H(\mathbf{R})$ is the minimum number of colors needed to color the members of $\mathbf{R}$ such that no hyperedge of $H(\mathbf{R})$ is monochromatic. We study the chromatic number of hypergraps that are defined by natural types of geometric instances such as discs, pseudo discs, axis-parallel rectangles etc.

For further information contact Janos Pach at pachcims.nyu.edu, or visit our website: http://www.math.nyu.edu/seminars/geometry_seminar.html