Temple University Mathematics Colloquium

Allan Greenleaf

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will speak on

Erdős-Falconer configuration problems and multilinear operators

ABSTRACT: In the geometry of discrete point sets in n-space, problems of Erdős type are of the following form: Given some measurement of geometric configuration (say, the distance between two points, or the area of the triangle determined by three points), possibly vector-valued, we ask whether, if E is a set with N elements, there is a lower bound, in terms of N, on the number of distinct configurations that arise among the elements of E. Relatedly, we may ask whether there is an upper bound on the number of times any one such configuration arises. The most famous problem of this type is the Erdős distance problem, the planar case of which was solved in 2010 by L. Guth and N. Katz. There are also continuous analogues of these problems, which are often referred to as Falconer problems. I will discuss some recent work (joint with a number of coauthors) on Erdős-Falconer problems, based on estimates for multilinear generalized Radon transforms.

Monday, October 7, 2013
Lecture at 4:00 pm
Coffee, tea, and refreshments from 3:40 pm
Room 617, Wachman Hall
Department of Mathematics