Geometry Seminar
April 24, 2007, Tuesday, 6:00 p.m.
Room 613, Courant Institute
251 Mercer Street, New York

A point set puzzle revisited

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Abstract

Two discrete point sets S_1 and S_2 in R^n are said to be homometric if, relative to some arbitrarily chosen origin, their difference sets S_1' and S_2' coincide, i.e., $\{\overrightarrow{x-y}|x, y \in S_1\} = \{\overrightarrow{x-y}|x, y \in S_2\}$. Given a difference set S', how can we find, and characterize, the sets $S_i, i = 1, \ldots$ that give rise to it? Homometric point sets were first defined in the 1930s, in connection with the interpretation of x-ray diffraction patterns, and have been studied from many points of view. Yet open problems still abound, even in the well plowed terrain $n = 1$.

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