Seminar on Combinatorial Computing
March 21, 2001, Wednesday, 6:30 p.m.
Room 8405, Graduate Center
365 Fifth Avenue, New York

Square triples in dense grids

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Abstract

We give an elementary proof for the next theorem, using a lemma of Ruzsa and Szemerédi. For any real number $\delta > 0$ there is a natural number $N_0 = N_0(\delta)$ such that for $N > N_0$ every subset of $[N]^2$ of size at least δN^2 contains a triple of the form $\{(a,b),(a+d,b),(a,b+d)\}$ for some natural number d. This result also follows from a theorem of Fürstenberg and Katznelson, but their proof gives no explicite bound as it uses ergodic theory.

For further information contact Janos Pach at pach@cims.nyu.edu, or visit our website: http://www.math.nyu.edu/ pach/combinatorics_seminar.html