Geometry Seminar
March 18, 2003, Tuesday, 6:00 p.m.
Room 613, Courant Institute
251 Mercer Street, New York

On a coloring problem for the integer grid

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Abstract

János Pach asked whether for any 2-coloring of the points of the integer grid in the plane, there exist arbitrary long sequences of consecutive collinear points of the same color. We answer this question in the negative for the plane, and more generally for any number of dimensions. More precisely, we show that for any $d \geq 1$, there exists a *maximum* positive integer $k = k(d)$ such that for any 2-coloring of Z^d, there exist k consecutive collinear points of the same color. We also give upper and lower bounds on $k(d)$ for all d.

This is a joint work with Adrian Dumitrescu.

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