Geometry Seminar
September 24, 2002, Tuesday, 6:00 p.m.
Room 613, Courant Institute
251 Mercer Street, New York

Lattice polygons and the number $2i + 7$

Christian Haase
Duke University

Abstract

A convex polygon P with vertices in $\mathbf{Z}^2$ has area $a(P)$, $i(P)$ lattice points in the interior, and $b(P)$ lattice points on the boundary. A triple of non-negative integers $2a, i, b \geq 3$ is the data of a convex lattice polygon if and only if $a = i + b/2 - 1$ (Pick's formula), and either $i = 0$, or ($i = 1$ and $b \leq 2i + 7 = 9$), or ($i > 1$ and $p \leq 2i + 6$).

Three proofs of this fact will be presented.

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