Temple University Mathematics Colloquium

Matthias Beck

San Francisco State University

will speak on

Coefficients and roots of Ehrhart polynomials

The Ehrhart polynomial of a lattice polytope counts integer points in integral dilates of the polytope. The coefficients of these polynomials are, for the most part, a complete mystery. We establish linear inequalities (depending only on the dimension of the polytope) between the coefficients of an Ehrhart polynomial. These relations imply, in particular, that the roots of any Ehrhart polynomial are bounded in fixed dimension. Our result can be generalized slightly to Poincare series of a certain type. Furthermore, we give partially tight bounds for the real roots of an Ehrhart polynomial. Finally, we will report on studies of special classes of polytopes, whose Ehrhart polynomials exhibit remarkable behavior. This is joint work with Jesus DeLoera (UC Davis), Mike Develin (UC Berkeley), Julian Pfeifle (Barcelona), and Richard Stanley (MIT).

Monday, November 8, 2004
Lecture at 4:00 PM (♯)
Coffee, tea, and refreshments from 2-5 PM.
Room 617, Wachman Building
Department of Mathematics