

Colloquium

University of Notre Dame
Department of Mathematics

Speaker: Phil Harrington
University of Arkansas



Will give a lecture entitled:

Pseudoconvex Domains with Corners
in Complex Projective Space

Date: Wednesday, April 20, 2016

Time: 4:00 pm

Location: 117 Hayes-Healy Hall

Departmental Tea: 257 Hurley Hall (math lounge) at 3:30 pm

Abstract:

Pseudoconvexity is a generalization of convexity that is invariant under biholomorphic maps. One tool for classifying pseudoconvex domains is the Diederich-Fornaess exponent, introduced in 1977 when Diederich and Fornaess proved that for every bounded pseudoconvex domain $\Omega \subset \mathbb{C}^n$ with C^2 boundary there exists an exponent $0 < s < 1$ and a C^2 defining function ρ for Ω such that $-(-\rho)^s$ is plurisubharmonic on Ω (a function is plurisubharmonic if it is subharmonic when restricted to any complex line). Diederich and Fornaess's proof relies heavily on the existence of a bounded, strictly plurisubharmonic function on Ω , in addition to uniform bounds on the second derivatives of the defining function. However, many recent applications of the Diederich-Fornaess exponent do not require either of these assumptions. In this talk, I will discuss these applications of the Diederich-Fornaess exponent and look at generalizations of the Diederich-Fornaess result to domains with Lipschitz boundaries in complex projective space.