Analysis Seminar Thursday October 15, 2015 11:30pm-12:20pm SCEN 322

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Title: *Bounded Plurisubharmonic Exhaustion Functions in Complex Projective Space*

Abstract: A function is plurisubharmonic if it is subharmonic whenever it is restricted to a complex line, and it is an exhaustion function for a domain if the level curves of the function are all compact subsets of the domain. The primary objects of study in several complex variables are pseudoconvex domains, which are characterized by the fact that they have a plurisubharmonic exhaustion function, but these exhaustion functions are generally unbounded. For many applications, it is important to have a bounded plurisubharmonic exhaustion function, with particular interest in the case where the exhaustion function is Holder continuous. In Euclidean space, Diederich and Fornaess proved that such a function exists on every bounded pseudoconvex domain with $\mathbb{C}^2$ boundary, and I later generalized their result to domains with Lipschitz boundaries. In projective space, Ohsawa and Sibony proved a generalization of the Diederich and Fornaess result for pseudoconvex domains with $\mathbb{C}^2$ boundaries. In this talk, I will discuss extensions of the Ohsawa-Sibony result to domains with Lipschitz boundaries.