

Analysis Seminar Thursday November 2, 2017

Speaker Phil Harrington

Title: Global Regularity for the Bergman Projection

Abstract: For a domain $\Omega \subset \mathbb{C}^n$, the Bergman Projection $P : L^2(\Omega) \rightarrow L^2(\Omega) \cap \mathcal{O}(\Omega)$ is the projection sending every square-integrable function to the closest holomorphic square-integrable function. Since all holomorphic functions are smooth, the range of P is always contained in $C^\infty(\Omega)$. However, there are known examples of domains on which P does not preserve $C^\infty(\overline{\Omega})$. The Bergman Projection is said to be globally regular on Ω if P maps $C^\infty(\overline{\Omega})$ into $C^\infty(\overline{\Omega})$, and classifying such domains is one of the central problems in several complex variables. In this talk, we will look at several sufficient conditions for global regularity and some new examples where these hold.