Analysis Seminar November 19, 2015, 11:30am-12:20pm in SCEN 322

Arnab Dutta University of Arkansas

Title: *On compactness of composition operators on $H^2(\mathbb{D})$*

Abstract: Let ϕ be an analytic self-map of the unit disk $\mathbb{D} := \{z : |z| < 1\}$. The composition operator C_ϕ defined by $C_\phi(f) = f \circ \phi$ is a bounded linear operator on the Hardy space $H^2(\mathbb{D})$. It is well-known that if C_ϕ is compact on $H^2(\mathbb{D})$ then $\|\phi^n\|_{H^2(\mathbb{D})} \to 0$ as $n \to \infty$. But the converse doesn't necessarily hold. We discuss the decay rate of $\|\phi^n\|_{H^2(\mathbb{D})}$ in the case when ϕ maps the unit disk to a domain whose boundary touches the unit circle exactly at one point.