TEMPLE UNIVERSITY

Department of Mathematics

Analysis Seminar

Room 617 Wachman Hall

Monday, October 29 2018, 2:40 p.m.

Extrapolation of H^2 functions in the upper half-plane

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Abstract: Hardy functions over the upper half-plane ($\mathbb{H}_+$) are determined by their values on any curve Γ lying in the interior or on the boundary of $\mathbb{H}_+$. Given that such a function f is small on Γ (say, is of order ϵ), how does this affect the magnitude of f at the point z away from the curve? When $\Gamma \subset \partial\mathbb{H}_+$, we give a sharp upper bound on $|f(z)|$ of the form ϵ^γ, with an explicit exponent $\gamma = \gamma(z) \in (0, 1)$ and describe the maximizer function attaining the upper bound. When $\Gamma \subset \mathbb{H}_+$ we give an upper bound in terms of a solution of an integral equation on Γ. We conjecture that this bound is sharp and behaves like ϵ^γ for some $\gamma = \gamma(z) \in (0, 1)$. This is a joint work with Yury Grabovsky.