

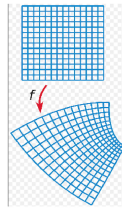
Student Research Talks (StReeTs)

Mason Experimental Geometry Lab (MEGL)

Introduction to Operator Theory and Weighted Composition Operators

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Abstract

After giving an overview on the basics of Operator Theory, we shall discuss a class of operators, based on some results in my PhD dissertation, known as the *weighted composition operators*, acting on spaces of analytic functions $f : \mathbb{D} \rightarrow \mathbb{C}$, where $\mathbb{D} = \{z \in \mathbb{C} : |z| < 1\}$. A weighted composition operator with symbols $\psi : \mathbb{D} \rightarrow \mathbb{C}$ and $\varphi : \mathbb{D} \rightarrow \mathbb{D}$ is the linear operator defined as

$$W_{\psi, \varphi} f = \psi(f \circ \varphi).$$

We characterize the bounded and compact weighted composition operators from a large class of Banach space X of analytic functions on \mathbb{D} into Zygmund-type spaces. Under more restrictive conditions, we provide an approximation of the essential norm of such operators. We apply our results to the cases when X is the Hardy space H^p and the weighted Bergman space A_α^p for $\alpha > -1$ and $p > 1$. We discuss the case of the space $S^p, p > 1$ where our general results are not applicable.

Date: Friday, October 19, 2018

Time: 2:30pm–3:20pm

Place: Exploratory Hall 4106

Pizza and soda will be served at the presentation.

For further information or for special accommodations, please contact Sean Lawton via email at slawton3@gmu.edu or drop by the MEGL.