# NORMAL WEIGHTED COMPOSITION OPERATORS ON THE HARDY SPACE

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ABSTRACT. Let $\phi$ be an analytic selfmap of the open unit disc $\mathbb{U}$ and let $\psi$ be an analytic function on $\mathbb{U}$ such that the weighted composition operator $W_{\psi,\phi}$ defined by $W_{\psi,\phi}f = \psi f \circ \phi$ is bounded on the Hardy space $H^2(\mathbb{U})$.

In this talk we present a characterization of weighted composition operators that are unitary, showing that in contrast to the unweighted case, every automorphism of $\mathbb{U}$ induces a unitary weighted composition operator. A conjugation argument, using these unitary operators, allows us to describe of all normal weighted composition operators for which the inducing map $\phi$ fixes a point in $\mathbb{U}$. In general, we show that if $W_{\psi,\phi}$ is normal, then $\phi$ must be univalent and $\psi$ must be nonzero at each point of $\mathbb{U}$. Descriptions of spectra are provided for the operator $W_{\psi,\phi}$ when it is unitary or when it is normal and $\phi$ fixes a point in $\mathbb{U}$.

This is a joint work with Paul S. Bourdon

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