
JAVAD MASHREGHI, Universite Laval
Composition operators on subspaces of H^2

Let b be in the closed unit ball of H^∞ . In this case, the Toeplitz operator T_b is simply the multiplication by b on H^2 . Then the $\mathcal{H}(b)$ space is defined to be the image of operator $(Id - T_b T_b^*)^{1/2}$, endowed with the scalar product

$$\langle (Id - T_b T_b^*)^{1/2} f, (Id - T_b T_b^*)^{1/2} g \rangle_{\mathcal{H}(b)} = \langle f, g \rangle_{H^2},$$

where $f, g \in (\ker(Id - T_b T_b^*)^{1/2})^\perp$. This is a Hilbert space which is contractively contained in H^2 . If $b = \Theta$ is inner, then $\mathcal{H}(\Theta)$ is a closed subspace of H^2 and is usually denoted by K_Θ . We will discuss the composition operators C_φ , with an inner symbol φ , on model subspaces K_Θ . If φ is an automorphism of the open unit disc, we also show that C_φ maps $\mathcal{H}(b)$, with b non-extreme, onto $\mathcal{H}(b \circ \varphi)$.