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ABSOLUTELY CONTINUOUS MEASURES AND COMPACT COMPOSITION OPERATOR ON SPACES OF CAUCHY TRANSFORMS

Y. ABU MUHANNA AND YUSUF ABU MUHANNA

ABSTRACT. The analytic self map of the unit disk \mathbf{D} , φ is said to induce a composition operator C_φ from the Banach space X to the Banach Space Y if $C_\varphi(f) = f \circ \varphi \in Y$ for all $f \in X$. For $z \in \mathbf{D}$ and $\alpha > 0$ the families of weighted Cauchy transforms F_α are defined by $f(z) = \int_{\mathbf{T}} K_x^\alpha(z) d\mu(x)$ where $\mu(x)$ is complex Borel measures, x belongs to the unit circle \mathbf{T} and the kernel $K_x(z) = (1 - \bar{x}z)^{-1}$. In this paper we will explore the relationship between the compactness of the composition operator C_φ acting on F_α and the complex Borel measures $\mu(x)$.

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Key Words and Phrases. Compact composition operator, Absolutely continuous measures, Cauchy transforms.

Department of Mathematics, American University of Sharjah, Sharjah , UAE

E-mail: ymuhanna@aus.ac.ae

School of Science and Engineering, Al Akhawayn University, Ifrane, Morocco

E-mail: e.yallaoui@alakhawayn.ma

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