1116-VB-541 **Soumyadip Acharyya***, 1103 14th Street, Apt 26A, Tuscaloosa, AL 35401, and **Zhijian Wu**.
Hilbert-Schmidtness of difference of two weighted composition operators - A survey.

Let φ be an analytic self-map of the open unit disc $\mathbb{D}$ and u be a measurable (**not necessarily analytic**) complex-valued function on $\mathbb{D}$. The linear map uC_φ on $H(\mathbb{D})$ defined by

$$(uC_\varphi)(f)(z) = u(z)(f \circ \varphi)(z), \forall f \in H(\mathbb{D}), \forall z \in \mathbb{D},$$

is called the weighted composition operator with weight u and symbol φ. For $\alpha > -1$, the weighted Bergman Space A^2_α consists of all analytic functions in $L^2(\mathbb{D}, dA_\alpha)$.

We study the difference of two weighted composition operators $uC_\varphi - vC_\psi$. We are particularly interested on characterizing the Hilbert-Schmidtness of that operator acting on A^2_α. In general, when u and v are both arbitrary analytic functions, the problem seems to be challenging. The special case of $u = 1$ and $v = 1$ (the unweighted case) has been solved by Choe, Hosokawa and Koo in 2010. We will briefly discuss an alternative proof of their result. Then we will discuss various different cases where u and v are of some specific forms. (Received September 06, 2015)