

Boundedness and compactness of weighted composition operators on dual and predual of Beurling algebras

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Abstract. This talk deals with some properties of the weighted composition operators on certain Banach spaces closely related to the Beurling algebra $l^1(\mathbb{Z}, v)$, where v is a weight sequence on \mathbb{Z} : namely, its dual Banach space $l^\infty(\mathbb{Z}, 1/v)$ and its predual Banach space $c_0(\mathbb{Z}, 1/v)$.

Given two complex-valued functions ψ and φ on \mathbb{Z} such that $\varphi(\mathbb{Z}) \subset \mathbb{Z}$, we give firstly a complete description of the bounded (compact) weighted composition operators $C_{\psi, \varphi} : l^\infty(\mathbb{Z}, 1/v) \rightarrow l^\infty(\mathbb{Z}, 1/w)$, and also defined from $c_0(\mathbb{Z}, 1/v)$ into $c_0(\mathbb{Z}, 1/w)$, in terms of the quantity $|\psi(n)|v(\varphi(n))/w(n)$.

We also prove that every weakly compact operator $C_{\psi, \varphi}$ between $l^\infty(\mathbb{Z}, 1/v)$ -spaces or $c_0(\mathbb{Z}, 1/v)$ -spaces is compact.

References

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