

Topological properties of weighted composition operators in sequence spaces

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For fixed sequences $u = (u_i)_{i \in \mathbb{N}}$, $\varphi = (\varphi_i)_{i \in \mathbb{N}}$, we consider the weighted composition operator $W_{u,\varphi}$ with symbols u, φ defined by $x \mapsto u(x \circ \varphi) = (u_i x_{\varphi_i})_{i \in \mathbb{N}}$. We characterize the continuity and the compactness of the operator $W_{u,\varphi}$ when it acts on the weighted Banach spaces $l^p(v)$, $1 \leq p \leq \infty$, and $c_0(v)$, with $v = (v_i)_{i \in \mathbb{N}}$ a weight sequence on \mathbb{N} . We extend these results to the case in which the operator $W_{u,\varphi}$ acts on Köthe echelon and co-echelon spaces, sequence (LF)-spaces of type $l_p(\mathcal{V})$ and on sequence (PLB)-spaces of type $a_p(\mathcal{V})$, with $p \in [1, \infty] \cup \{0\}$, and \mathcal{V} a system of weights on \mathbb{N} .

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