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DISK-CYCLICITY AND WEIGHTED SHIFTS OPERATORS

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Abstract

Let $\mathcal{H}$ be an infinite-dimensional separable complex Hilbert space. Motivated by supercyclicity, we define *disk-cyclicity*, namely, an operator T is called *disk-cyclic* if there is a vector x in $\mathcal{H}$ such that $\{\alpha T^n x | n \geq 0, \alpha \in \mathbb{C}; |\alpha| \leq 1\}$ is norm-dense in $\mathcal{H}$, such a vector is called a *disk-cyclic* vector for T.
In this paper, we list some basic properties of disk-cyclic operators and vectors (§1). We study necessary and sufficient conditions for an operator to be disk-cyclic (§2). Finally, we study characterize disk-cyclic weighted shifts in term of their weight sequences (§3).
