报告题目：Power Set of Some Quasinilpotent weighted shifts

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报告摘要：

Given a quasinilpotent bounded linear operator T on a complex Hilbert space H, we write $k_x = \limsup_{z \to 0} \log\|(z-T)^{-1}x\| / \log\|(z-T)^{-1}\|$ for each nonzero vector x. Set $\Lambda(T) = \{k_x : x \neq 0\}$, and call it the power set of T denoted by $\Lambda(T)$. This notation was introduced by Douglas and Yang. They showed that for $\tau \in \Lambda(T)$, $M\tau := \{0, x : k_x \leqslant \tau\}$ is a linear subspace invariant under each A commuting with T; hence, if there are two different points $\tau j \in \Lambda(T)$ such that $M\tau j$'s are closed, then T has a nontrivial hyperinvariant subspace. We show that if a quasinilpotent unilateral weighted shift T is strongly strictly cyclic, then $\Lambda(T) = \{1\}$. Moreover, we construct a quasinilpotent operator T such that $\Lambda(T) = [0,1]$ and $M\tau$ is not closed for all τ in $[0,1)$. Even so, we still find a subset N of Lat T, the lattice of invariant subspaces of T, such that N is order isomorphic to $\Lambda(T)$.

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