

# Cyclic vectors in weighted Bergman spaces

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## Abstract

This talk is devoted to the study of cyclic singular inner functions for the unilateral shift,

$M_z : f \mapsto zf$ , on the Hilbert space

$$B_\alpha^2 := \left\{ f = \sum_{n \geq 0} a_n z^n \text{ analytic in } \mathbb{D} : \|f\|_{B_\alpha^2}^2 = \sum_{n \geq 0} \frac{|a_n|^2}{\alpha(n)^2} < +\infty \right\}.$$

Here  $\alpha = (\alpha(n))_{n \geq 0}$  is a positive sequence such that  $\lim_{n \rightarrow +\infty} \alpha(n) = +\infty$  and  $\sup_{n \geq 0} \frac{\alpha(n)}{\alpha(n+1)} < +\infty$ . Recall that a function  $f \in B_\alpha^2$  is said to be cyclic for  $B_\alpha^2$  if the smallest closed invariant subspace of  $M_z$  containing  $f$  coincides with  $B_\alpha^2$ .