

# Paired kernels and their properties

André Guimarães<sup>1</sup>,

<sup>1</sup> Department of Mathematics, Instituto Superior Técnico, Universidade de Lisboa

Paired operators are a class of operators on the  $L^2$  space of square-integrable complex-valued functions on the unit circle. These take the form  $S_{a,b} := aP^+ + bP^-$  with  $a, b \in L^\infty$  and  $P^\pm$  the Riesz projections from  $L^2 = H^2 \oplus (H^2)^\perp$  onto the Hardy space  $H^2$  and its orthogonal complement, respectively. The space  $P^+(\ker S_{a,b})$  is the kernel of the (possibly unbounded) Toeplitz operator  $T_{-\frac{a}{b}}$ .

Motivated by the study of asymmetric truncated Toeplitz operators, we study the properties of the kernels of paired operators, called paired kernels, and their projections into  $H^2$ , such as near-invariance, and inclusion relations among projections of paired kernels.

The talk is based on joint work with M. Cristina Câmara and Jonathan Partington.