A CLASS OF TRIDIAGONAL REPRODUCING KERNELS

GREGORY T. ADAMS AND PAUL J. McGUIRE

Abstract. The class of analytic reproducing kernels

\[ K_p(z, w) = \sum_{n=0}^{\infty} f_n(z) f_n(w) \]

is considered where \( f_n(z) = (1 - b_nz)^n \) with \( b_n = \frac{(n+1)p}{n+2} \) and \( p > 0 \). In this case \( H(K_p) \) consists of functions with domain \( \mathbb{D} \cup \{1\} \). For each \( p \), a concrete realization of \( H(K_p) \) is provided. For the case \( p > 1/2 \), \( H(K_p) \) is shown to have the factorization property and the operator of multiplication by \( z \) is shown to be similar to a rank one perturbation of the unilateral shift. A characterization of the multiplier algebra of \( H(K_p) \) is given for all values of \( p > 0 \).

Key words and phrases: Tridiagonal reproducing kernel, multiplication operator.

REFERENCES