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A family of orthogonal polynomials on the unit circle. (Spanish) Zbl 1012.42019

Summary: We study the sequence \( \{P_n\}_{n=0}^{\infty} \) of monic orthogonal polynomials on the unit circle such that
\[ P_{2n-1}(0) = a, \quad P_{2n}(0) = b \]
with \( n \in \mathbb{N}, a, b \in \mathbb{C} \setminus \mathbb{T}, a \neq b \). This situation is a generalization of the well-known case: \( P_n(0) = a, n \in \mathbb{N} \). We give a recurrence formula for the polynomials \( P_n \) and we obtain the orthogonality measure and the corresponding Carathéodory function. For the case \( a, b \in (-1,1) \) we also give an explicit expression of the moments.

For the entire collection see [Zbl 0993.00021].

MSC:
42C05 Orthogonal functions and polynomials, general theory of nontrigonometric harmonic analysis

Keywords:
Schur parameters; monic orthogonal polynomials; recurrence formula; Carathéodory function