

ICM-9112-23 An Analogue for Szegő Polynomials of the Clenshaw Algorithm, Gregory S. Ammar, William B. Gragg and Lothar Reichel, *J. Comput. Appl. Math.*, 46(1993), pp. 211-216.

ABSTRACT: Linear combinations of polynomials that are orthogonal with respect to an inner product defined on (part of) the real axis are commonly evaluated by the Clenshaw algorithm. We present an analogous algorithm for the evaluation of a linear combination $\sum_{j=0}^n \alpha_j \phi_j$ of polynomials ϕ_j that are orthogonal with respect to an inner product defined on (part of) the unit circle. The ϕ_j are known as Szegő polynomials, and find applications, e.g., in signal processing. We also discuss how to express $\sum_{j=0}^n \alpha_j \phi_j$ as a linear combination of monomials.