

Pick functions and perturbation of parameters of orthogonal polynomials

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When a nontrivial measure μ on the unit circle satisfies the symmetry $d\mu(e^{i(2\pi-\theta)}) = -d\mu(e^{i\theta})$ then the associated orthogonal polynomials on the unit circle, say Φ_n , are all real. In this talk, recent literature for the relation between the two sequences of para-orthogonal polynomials $\{z\Phi_n(z) + \Phi_n^*(z)\}$ and $\{z\Phi_n(z) - \Phi_n^*(z)\}$, where $\phi_n^*(z) = z^n \overline{\Phi_n(1/\bar{z})}$, $|z| < 1$ for any nontrivial measure in terms of three term recurrence relation is outlined.

Two different perturbations on the parameters of the three term recurrence relation are considered. These perturbations lead to studying the Co-dilated and Co-recursive polynomials. An application related to the class of Pick functions is provided.