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Relative Asymptotics of Orthogonal Polynomials for Perturbed Measures.

In the context of orthogonal polynomials in the plane we introduce the notion of a polynomially small (PS) perturbation of a measure. Namely, if $\mu_0 \geq \mu_1$ and $\{p_n(\mu_j, z)\}_{n=0}^{\infty}, j = 0, 1$, are the associated orthonormal polynomial sequences, then μ_0 a PS perturbation of μ_1 if $\|p_n(\mu_1, \cdot)\|_{L_2(\mu_0 - \mu_1)} \rightarrow 0$, as $n \rightarrow \infty$. In such a case we establish relative asymptotic results for the two sequences of orthonormal polynomials. We also provide results dealing with the behaviour of the zeros of PS perturbations of area orthogonal (Bergman) polynomials. (Received September 04, 2016)