

A Tale of Two Pictures: Fine Structure of the Zeros of OPUC

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Mhaskar and Saff proved a wonderful result about the bulk structure of the zeros of orthogonal polynomials on the unit circle (OPUC). I'll begin by showing pictures in two cases: random Verblunsky coefficients and Verblunsky coefficients with exact exponential decay (with exponential errors, a class considered already by Barrios, Lopez and Saff). Based on this, I'll discuss conjectures about the structure of zeros on a $1/N$ scale - in the random case, they should be asymptotically Poisson distributed and in the strong exponential case, they should have a clock distribution. I hope to describe some results of my graduate student Mihai Stociu on the random case and some new results of my own on the strong exponential case.