Sobolev extremal polynomials with respect to mutually singular measures

Abel Díaz González

Extremal polynomials with respect to a Sobolev-type p-norm, with $1< p < \infty$ and measures supported on compact subsets of the real line, are considered. For a wide class of such extremal polynomials with respect to measures mutually singular, it is proved that their critical points are simple and contained in the interior of the convex hull of the support of the measures involved, the asymptotic critical point distribution is studied. We also find the n-th root asymptotic behavior of the corresponding sequence of the derivatives of Sobolev extremal polynomials.