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Maximin Polynomials and Inverse Balayage

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Abstract. For a bounded domain G in the complex plane, we focus on the problem of maximizing the minimum on the boundary ∂G of (weighted) polynomials of degree n having all zeros in a set $D \subset G$. For arbitrary unit measures μ on ∂G and weight $w := \exp\{U^\mu\}$, the n -th root asymptotics of

$$\sup_{p_n} \inf_{z \in \partial G} |p_n(z)w^n(z)|$$

is considered and related to the existence and construction of an inverse balayage of μ on \overline{D} , i.e. of a measure such that μ is its balayage when sweeping to ∂G .

Keywords. Logarithmic potential, weighted polynomial, equilibrium distribution, capacity, balayage, inverse balayage.

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