On a Generalization of Jentzsch's Theorem

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Let E be a compact subset of $\mathbb C$ with connected, regular complement $\Omega = \overline{\mathbb C} \setminus E$ and let G(z) denote Green's function of Ω with pole at ∞ . For a sequence $(p_n)_{n \in \Lambda}$ of polynomials with deg $p_n = n$, we investigate the value-distribution of p_n in a neighbourhood U of a boundary point z_0 of E if G(z) is an exact harmonic function of the subharmonic functions

 $\frac{1}{n}\log|p_n(z)|, \quad n \in \Lambda$

in $\overline{\mathbb{C}} \setminus E$. The result holds for partial sums of power series, best polynomial approximations, maximally convergent polynomials and can be extended to rational functions with a bounded number of poles.