

Approximation by Some Extremal Polynomials over Complex Domains

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Let G be a finite simply connected domain in the complex plane \mathbb{C} , bounded by a rectifiable Jordan curve L and $w = \varphi_0(z)$ be the Riemann conformal mapping of G onto $D(0, r_0) := \{w : |w| < r_0\}$ with the normalization

$$\varphi_0(\zeta) = 0, \varphi_0'(\zeta) = 1,$$

where $\zeta \in G$. We investigate the approximation properties of the polynomials which are solutions of some extremal problems and estimate the rate of approximation to φ_0 by these polynomials, in the closed domain \overline{G} .