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**Approximation of Conformal Mapping via the Szegő Kernel Method**

CMFT 3 No.1 (2003), 79–94. [ISSN 1617-9447]

**Abstract.** We study the uniform approximation of the canonical conformal mapping, for a Jordan domain onto the unit disk, by polynomials generated from the partial sums of the Szegő kernel expansion. These polynomials converge to the conformal mapping uniformly on the closure of any Smirnov domain. We prove estimates for the rate of such convergence on domains with piecewise analytic boundaries, expressed through the smallest exterior angle at the boundary. Furthermore, we show that the rate of approximation on compact subsets inside the domain is essentially the square of that on the closure. Two standard applications to the rate of decay for the contour orthogonal polynomials inside the domain, and to the rate of locally uniform convergence of Fourier series are also given.

**Keywords.** Conformal mapping, Szegő kernel, Fourier series, orthogonal polynomials.

**2000 MSC.** Primary 30C40, 30E10; Secondary 41A10, 30C30.

**Received.** May 6, 2003.