

Bergman Shift Operator for Jordan Domains

Nikos Stylianopoulos

Department of Mathematics and Statistics,

University of Cyprus,

P.O. Box 20537, CY 1678 Nicosia, Cyprus

nikos@ucy.ac.cy

<http://www.ucy.ac.cy/nikos.html>

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Let G be a bounded Jordan domain in the complex plane. The Bergman polynomials $\{p_n\}_{n=0}^{\infty}$ of G are the orthonormal polynomials with respect to the area measure over G . They are uniquely defined by the entries of an infinite upper Hessenberg matrix M . This matrix represents the Bergman shift operator of G . The main purpose of the talk is to describe and analyze a close relation between M and the Toeplitz matrix with symbol the normalized conformal map of the exterior of the unit circle onto the complement of \overline{G} . Our results are based on the strong asymptotics of p_n .