



The University of Chicago
Department of Statistics

Seminar Series

OFER ZEITOUNI

Department of Mathematics
University of Minnesota

Eigenvalues of Non-normal Matrices and a Single Ring Theorem

MONDAY, March 1, 2010, at 2:30 PM
Ryerson Hall, Room 358, 1100 E. 58th Street

ABSTRACT

We study the empirical measure L_{A_n} of the eigenvalues of non-normal square matrices of the form $A_n = U_n D_n V_n$ with U_n, V_n independent Haar distributed on the unitary group and D_n real diagonal. We show that when the empirical measure of the eigenvalues of D_n converges, and D_n satisfies some technical conditions, L_{A_n} converges towards a rotationally invariant measure on the complex plane whose support is a single ring. In particular, we provide a complete proof of Feinberg-Zee single ring theorem [FZ]. We also consider the case where U_n, V_n are independent Haar distributed on the orthogonal group.

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