

ON THE EXTREME AND NEAR-TO-EXTREME EIGENVALUE STATISTICS OF RANDOM MA- TRICES

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Resumo/Abstract:

Recently there has been much interest in the distribution of the largest eigenvalue of large random matrices. Focusing on ensembles with unitary symmetry, generically this distribution is universal and given in terms of the Tracy-Widom distribution. However, there exists a measure zero set of non-generic ensembles where the largest eigenvalue is distributed according to higher-order analogs of the Tracy-Widom distribution which are related to members of the Painlevé II and XXXIV hierarchy. As we will show, the same members of the integrable hierarchy can also be used to obtain the rescaled spectrum around the largest eigenvalue. (Based on joint work with M. Atkin)