Gaussian fluctuations for random matrices

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Abstract: In this talk I will report a central limit theorem for the k-th largest eigenvalue $\lambda_{(k)}$ of Laguerre unitary ensembles as k tends to infinity. The focus is on the determination of two normalizing constants a_n, b_n. We apply the Costin-Lebowitz-Soshnikov central limit theorem for the determinantal point processes of eigenvalues and carefully calculate the expectation and variance of the number of eigenvalues in the half-infinity interval. This is an analog of Gustavsson's result about the Gaussian unitary ensembles.