

Spectral norm of random large dimensional noncentral Toeplitz and Hankel matrices

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Abstract

Suppose s_n is the spectral norm of either the Toeplitz or the Hankel matrix whose entries come from an i.i.d. sequence of random variables with positive mean μ and finite fourth moment. We show that $n^{-1/2}(s_n - n\mu)$ converges to the normal distribution in either case. This behaviour is in contrast to the known result for the Wigner matrices where $s_n - n\mu$ is itself asymptotically normal.

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