

Anirban Basak

Title : Spectrum of random perturbations of finitely banded Toeplitz matrices

Abstract : Consider a finitely banded Toeplitz matrix T_N and let E_N be an error matrix with $N^{-1/2} \|E_N\|_{\text{HS}} \rightarrow 0$, polynomially in its dimension N . In this talk, we will discuss the limiting spectral measure of $T_N + E_N$. We will see that under a very mild assumption on the entries of E_N the limit is a push forward of the uniform measure on the unit circle by the symbol of the Toeplitz matrix T_N . It confirms the predictions based on the pseudo-spectrum of T_N . This is joint work with Elliot Paquette and Ofer Zeitouni.