

Title: The eigenvalues of a fixed matrix plus small random noise
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Abstract: Random noise can be modeled by a non-Hermitian random matrix with iid mean zero variance one entries. When scaled by $1/\sqrt{n}$, the eigenvalues of such a matrix follow the circular law, and when scaled by $n^{-\gamma-1/2}$ for $\gamma > 0$, which we call small noise, the eigenvalues collapse to the origin. This talk will discuss what happens to the eigenvalues of a fixed matrix when you add small noise in the form of an iid matrix. There are interesting cases where the eigenvalue distribution is known to change dramatically when small Gaussian random noise is added, and this talk will focus on what happens when the noise is not Gaussian.