

# Gaussian Unitary Ensemble

Gaussian Unitary Ensemble (GUE):

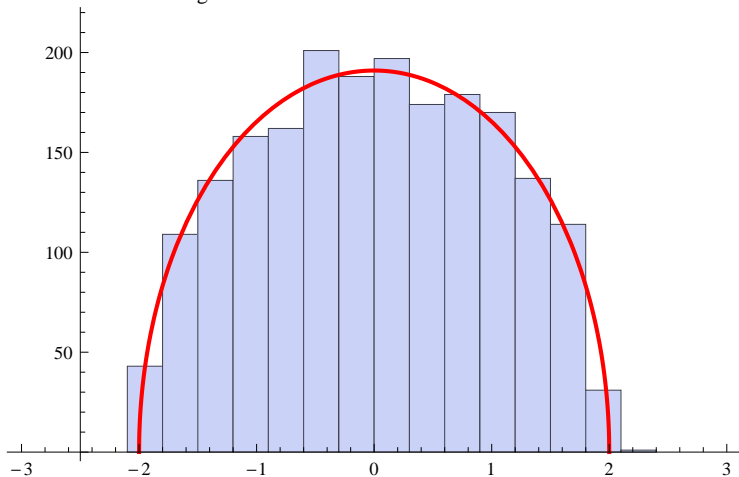
$M$  is Hermitian

$dM$  is Lebesgue measure

$$dP_n(M) = \frac{1}{Z_n} \exp\left(-\frac{n}{2} \operatorname{tr} M^2\right) dM$$

Wigner's semicircle:  $dP_n(\lambda) \rightarrow \frac{1}{2\pi} \sqrt{4 - \lambda^2} d\lambda$

Eigenvalues of 100 20x20 GUE matrices



# One point correlation function

Eigenvalues of 4000 5x5 GUE matrices

