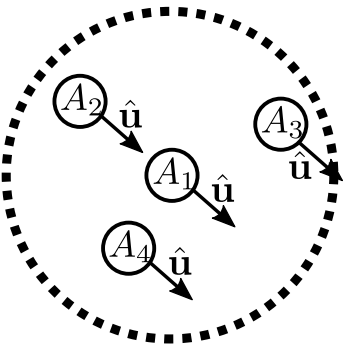


a)

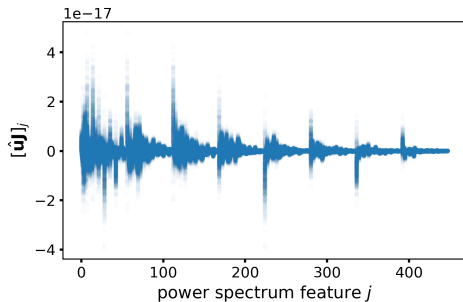
$$\mathbf{u} \sim \mathcal{U}_{[0,1)^3}, \hat{\mathbf{u}} = \mathbf{u} / \|\mathbf{u}\|$$



$\hat{\mathbf{u}}$ random global translation

b)

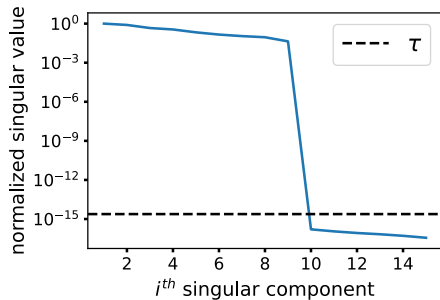
$$[\hat{\mathbf{u}}\mathbf{J}]_j = \sigma_j [\hat{\mathbf{u}}\mathbf{Z}]_j \sim \mathcal{N}(0, \sigma_j^2)$$



distribution of noise over features

c)

$$\tau = \lambda(\beta) \sqrt{n} \max_j (\sigma_j)$$



singular values of \mathbf{J}