

# ASYMPTOTIC DISTRIBUTION OF SINGULAR VALUES FOR MATRICES IN A SPHERICAL ENSEMBLE

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We consider the asymptotic behavior of the singular values of a so-called spherical ensemble of random matrices of large dimension. These are matrices of the form  $\mathbf{XY}^{-1}$ , where  $\mathbf{X}$  and  $\mathbf{Y}$  are independent matrices of dimension  $n \times n$  whose symmetric entries have correlation coefficient  $\rho$ . We show that the limit distribution of the singular values is independent of the correlation coefficient and has the density

$$p(x) = \frac{1}{\pi\sqrt{x}(1+x)}\mathbb{I}\{x > 0\},$$

where  $\mathbb{I}\{A\}$  stands for the indicator of an event  $A$ .

*Key words and phrases:* random matrix, spherical ensemble, empirical spectral distribution function, spherical law.

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