

Random Matrices and Number Theory

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Consider an $N \times N$ Hermitian matrix whose entries are independent and identically distributed from a fixed probability distribution p . Such matrices display consistent patterns in the distribution of their eigenvalues as matrix size becomes very large. Surprisingly, the same patterns emerge in the distributions of the zeros of certain important functions in number theory, called L -functions.

In this talk, we will discuss the evidence pointing to the existence of this link, as well as some of the implications of the relationship between random matrix theory and analytic number theory.

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