

# About large deviations for the largest eigenvalue of random matrices

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Large deviations for the largest eigenvalue of random matrices are useful for instance to study the complexity of random functions, in particular the volume of their minima. The simplest model could be studied by Auffinger-Ben Arous -Cerny by using large deviation for the largest eigenvalue of a Gaussian matrix. To include a signal, Ben Arous, Mei, Montanari and Nica used large deviations for the largest eigenvalue of a tilted Gaussian matrix derived by Maida. In this talk I will discuss how to consider large deviations for even more sophisticated random matrices showing up in more complex models, such as random matrices with variance profile or matrices obtained as sums of a Gaussian matrix with a diagonal matrix. This talk is based on joint work with Boursier, Ben Arous, Ducatez and Husson.

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