

## Abstract:

In the last decade non-Gaussian distributions discovered in random matrices (e.g., the Tracy-Widom distributions) were proven to describe limit laws of fluctuations in apparently unrelated probabilistic models, like the last passage percolation or the asymmetric exclusion process. It is believed that these distributions are universal, that is, they appear independently of the details of the model (under mild assumptions). Similarly, the extension to joint distribution has lead to the discovery of new universal limit processes (e.g., the Airy processes). I will present some of these developments and their connections with random matrices by focusing on the asymmetric exclusion process.