Tracy-Widom distributions in discrete models

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I will discuss how the Tracy-Widom (TW) distributions arise in some discrete KPZ models. The TW distributions have been first discovered in random matrix theory, but they appear also in stochastic growth models like the polynuclear growth (PNG) model, and in interacting particle systems like the totally asymmetric simple exclusion process (TASEP). I will explain how the TW distributions are observed in a problem of random permutations, whose poissonized version is the PNG model. In the PNG model and in TASEP, the results are obtained using the knowledge of the correlation functions. These are obtained by the use of an hidden system of non-intersecting line ensembles or of measures on interlacing point configurations.