ON THE CONFORMAL STRUCTURE OF RANDOM TRIANGULATIONS

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A (planar) triangulation is a graph embedded in the two-dimensional sphere such that all its faces are surrounded by three edges. Consider a random triangulation T_n chosen uniformly over all triangulations of the sphere having n faces. The metric structure of T_n endowed with the graph distance has been studied in depth during recent years. In particular, Le Gall and Miermont recently proved that the metric space obtained from T_n by re-scaling all distances by $n^{-1/4}$ converges towards a random compact metric space called "the Brownian map".

In this talk, we will focus on another aspect of random triangulations. Indeed, T_n can naturally be considered as a random Riemann surface and one can study its "conformal structure" which is conjectured to be strongly linked to the Gaussian free field. I will present a path to study the conformal structure of random planar maps based on their Markovian exploration by an independent SLE_6 process.

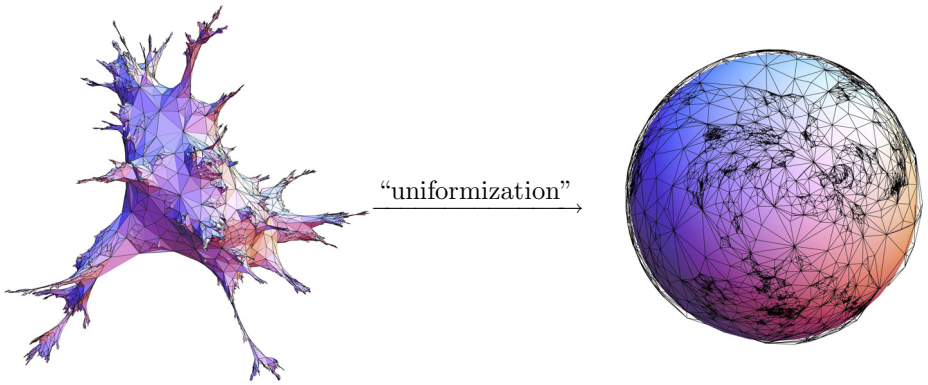

FIGURE 1. A random triangulation embedded not isometrically in $\mathbb{R}^3$ and an approximation of its uniformization on the two-dimensional sphere.