



Mathematics and CS Seminar

Decorated stable trees

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Many combinatorial objects may be decomposed in a natural way into an underlying tree whose vertices are identified with structures which we will call decorations. We refer to such objects as decorated trees. A simple example is an ordered tree, whose decorations are linear orderings of size equal to the degree of their corresponding vertex. Another less trivial example are so called looptrees, introduced by Curien and Kortchemski, where the decorations are circle graphs of length equal to the degree of their corresponding vertex. Random decorated trees appear in statistical physics models on random 2D triangulations (and maps in general). Curien and Kortchemski showed that random looptrees describe the boundary between components in critical percolation on uniform triangulations and there is evidence that this holds for more general models of maps and matter. In this talk I will introduce a general model of random decorated trees where the underlying tree is a size conditioned branching process whose offspring distribution is in the domain of attraction of a stable distribution. This implies that in large trees, there will be many vertices which have a large degree. Under some suitable conditions on the decorations, the decorated tree will have a scaling limit and due to the vertices of large degree the decorations will be present in the limit. The talk is based on arxiv.org/abs/2205.02968 which is a joint work with Delphin Sénizergues and Benedikt Stufler.

Wednesday, March 29, 2023 04:45pm - 06:00pm

Mondi 2 (I01.01.008), Central Building



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