

Frozen percolation in two dimensions

Pierre Nolin ¹

¹ ETH Zurich

Resumo/Abstract:

We discuss the frozen percolation model. This growth process, where the connected components (clusters) stop growing ("freeze") as soon as they become infinite, was introduced by Aldous in 1999 on the binary tree. We investigate a related process in two dimensions, where the clusters freeze as soon as they contain at least N vertices, for some finite parameter N . In particular, we prove that the density of frozen sites vanishes as $N \rightarrow \infty$, and we establish a deconcentration property for the cluster sizes. Our results are based on a precise understanding of 2D percolation near criticality, and they also give insight into forest-fire processes (where lightning hits independently each tree with a small rate, and burns its entire connected component immediately).

This talk is based on joint works with Rob van den Berg (CWI and VU, Amsterdam) and Demeter Kiss (U. Cambridge).