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Title: Directed spanning trees and the Brownian web

Abstract: Vertices of Z^d are independently labeled open or closed, and edges join open vertices to their L_1 nearest open vertex in a given orientation. In case there are more than one open vertex, one of them is chosen uniformly. This gives the directed spanning forest. We show that in two and three dimensions this directed spanning forest is a connected tree, while in four and higher dimensions it is a forest with each connected component an infinite tree. Moreover in two dimensions, the diffusive scaling of the process yields a Brownian web.

This is joint work with Kumarjit Saha and Anish Sarkar.