



Probability Seminar

Title: The scaling limit of a critical random directed graph

Speaker: Christina Goldschmidt (Oxford)

Date: Wed 5th February 2020 at 2:00PM

Location: Seminar Room SCN 1.25

Abstract: We consider the random directed graph $D(n, p)$ with vertex set $1, 2, \dots, n$ in which each of the $n(n-1)$ possible directed edges is present independently with probability p . We are interested in the strongly connected components of this directed graph. A phase transition for the emergence of a giant strongly connected component is known to occur at $p = 1/n$, with critical window $p = 1/n + \lambda n^{-4/3}$ for $\lambda \in \mathbb{R}$. We show that, within this critical window, the strongly connected components of $D(n, p)$, ranked in decreasing size, are regular or loops. This is joint work with Robin Stephenson (Oxford).

<mailto:neil.oconnell@ucd.ie>