Probability Seminar

Title: Continuity of the phase transition for long-range Bernoulli percolation with exponential decay on $\mathbb{Z}^2$

Speaker: Daniel de la Riva (University of Bath)

Date: Wed 28th October 2026 at 2:00PM

Location: N0.20 - Science North

Abstract: We prove continuity of the phase transition for long-range Bernoulli percolation on $\mathbb{Z}^2$ with connection probabilities that decay at least exponentially fast. This extends earlier work by Duminil-Copin, Sidoravicius, and Tassion on slabs. Our proof establishes a finite-size criterion that allows us to run a renormalisation argument. As a corollary, we obtain supercritical sharpness, in the sense that for every $\beta > \beta_c$, there exists a unique macroscopic cluster in large boxes with high probability.