Sharpness of the phase transition via randomized algorithms

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Résumé

In this talk, we will provide a new proof of exponential decay for the connection probabilities of subcritical Bernoulli percolation, based on randomized algorithms. This proof does not rely
on the domain Markov property or the BK inequality. In particular, it extends to FK percolation and continuum percolation models such as Boolean and Voronoi percolation in arbitrary dimension. This provides the first proof of sharpness of the phase transition for these models.
This talk is based on a joint work with Hugo Duminil-Copin and Aran Raoufi.

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