

Title:

Perfect matchings in the random bipartite geometric graph.

Abstract:

We consider the standard random bipartite geometric graph process in which n red vertices and n blue vertices are placed at random on the unit d -dimensional cube and edges are added sequentially, between vertices of different colors, in increasing order of edge-length. A natural question is to ask whether the first edge in the process that results in the minimum degree being at least one coincides, with high probability, with the first edge that creates a perfect matching. While this was already known to be false when $d=2$, as the thresholds are not even of the same order, we are able to positively answer it for d at least 3. (This is joint work with Abigail Raz.)