Nucleation in Random Graphs

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Abstract

Ensembles of large random graphs with hard constraints on the numbers of edges and triangles exhibit a number of very different phases. At a previous South Texas Discrete Geometry conference, I reported on the overall phase portrait and on what a typical graph in each of these phases looks like. After reviewing those results, I will report on recent progress on the way that a large but finite graph can change form from one phase to another, a process (vaguely) analogous to the nucleation of crystals as a fluid cools. This is joint work with Charles Radin and Joe Neeman.