RANDOM GRAPHS WITH GIVEN VERTEX DEGREES AND SWITCHINGS

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ABSTRACT. Random graphs with a given degree sequence are often constructed using the configuration model, which yields a random multigraph. We may adjust this multigraph by a sequence of switchings, eventually yielding a simple graph. We show that, assuming essentially a bounded second moment of the degree distribution, this construction with the simplest types of switchings yields a simple random graph with an almost uniform distribution, in the sense that the total variation distance is $o(1)$.

This construction can be used to transfer results on distributional convergence from the configuration model multigraph to the uniform random simple graph with the given vertex degrees. As an example, this yields asymptotic normality of the size of the giant component in the supercritical case.

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