

# Embedding the binomial random graph in the regular random graph

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Let  $\mathbb{G}(n, p)$  be the binomial random graph and  $\mathbb{R}(n, d)$  the random  $d$ -regular graph. In 2004 Kim and Vu proved that one can define a joint distribution of these two graphs (with  $p \sim d/n$ ) in such a way that

$$\mathbb{P}\{\mathbb{G}(n, p) \subset \mathbb{R}(n, d)\} \rightarrow 1, \quad n \rightarrow \infty,$$

provided  $\log n \ll d \ll n^{1/3}/\log^2 n$ . Such an embedding allows deduction of monotone increasing properties (like Hamiltonicity) of  $\mathbb{R}(n, d)$  from the simpler model  $\mathbb{G}(n, p)$ . We relax the restriction on  $d$  to  $\log n \ll d \ll n$  and provide an extension to random hypergraphs. (Joint work with A. Dudek, A. Frieze, and A. Ruciński.)