

Clique colouring of binomial random graphs and random geometric graphs

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A clique colouring of a graph is a colouring of the vertices so that no maximal clique is monochromatic (ignoring isolated vertices). The smallest number of colours in such a colouring is the clique chromatic number. We study the asymptotic behaviour of the clique chromatic number of the random graph $G(n, p)$ for a wide range of edge-probabilities $p = p(n)$. We see that the typical clique chromatic number, as a function of the average degree, forms an intriguing step function. Moreover, we also study random geometric graphs.