

On the chromatic number of graphons

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We give an extension of Bollobás' classical result on the chromatic number of the binomial random graph to exchangeable random graphs associated with graphons. The asymptotic value was conjectured by Martinsson, Panagiotou, Su, and Trujić. We confirm this conjecture for a special class of graphons that can be approximated by step graphons in L^1 norm. For general graphons, we verify the upper bound of the conjecture. We also prove similar results for the sparse random graphs obtained from percolations on graphons.