On Induced Paths, Holes and Trees in Random Graphs

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(joint work with C. R. Subramanian)

We study the concentration of the largest induced paths, trees and cycles (holes) in the Erdos-Renyi random graph model and prove a 2-point concentration for the size of the largest induced path and hole, for all $p = \Omega(n^{?1/2} \ln^2 n)$. As a corollary, we obtain an improvement over a result of Erdos and Palka concerning the size of the largest induced tree in a random graph. Further, we study the path chromatic number and tree chromatic number i.e. the smallest number of parts into which the vertex set of a graph can be partitioned such that every The arguments involve the application of a modified version of a probabilistic inequality of Krivelevich, Sudakov, Vu and Wormald.