

The phase transition in the random d -process

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One of the most interesting features of Erdős-Rényi random graphs is the ‘percolation phase transition’, where the global structure intuitively changes from only small components to a single giant component plus small ones. In this talk we discuss the percolation phase transition in the random d -process, which corresponds to a natural algorithmic model for generating random regular graphs that differs from the usual configuration model (starting with an empty graph on n vertices, the random d -process evolves by sequentially adding new random edges so that the maximum degree remains at most d). Our results on the phase transition solve a problem of Wormald from 1997, and verify a conjecture of Balinska and Quintas from 1990.

Based on joint work with Nick Wormald.