

Large deviations and low complexity Gibbs measures

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I will overview the emerging theory of large deviations for low complexity Gibbs measures, the naive mean field approximation of their partition functions and representing such measures as mixtures of not too many product measures. As time permits, we will consider certain applications, such as to the abundance of specific patterns in sparse random graphs, having many arithmetic progressions in a uniformly chosen random set and the universality of the Potts model on graphs of growing average degrees.