UNDERSTANDING EXPONENTIAL RANDOM GRAPH MODELS

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The exponential family of random graphs is among the most widely-studied of network models. A host of analytical and numerical techniques have been developed in the past. We review recent developments in the study of exponential random graph models and concentrate on the phenomenon of phase transitions. We also present a new perspective: Any exponential random graph model could be alternatively viewed as a lattice gas model with a finite Banach space norm, and could be treated by cluster expansion methods in statistical mechanics.