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The maximum likelihood threshold of a graph.

The maximum likelihood threshold of a graph is the smallest number of data points that guarantees that maximum likelihood estimates exist almost surely in the Gaussian graphical model associated to the graph. In this talk, we will show that this graph parameter is connected to the theory of combinatorial rigidity. In particular, if the edge set of a graph G is an independent set in the $(n - 1)$ -dimensional generic rigidity matroid, then the maximum likelihood threshold of G is less than or equal to n . This connection allows us to make several new statements regarding the existence of the maximum likelihood estimator in situations of limited data. (Received August 11, 2015)