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Semidefinite matrix completion and Gaussian graphical models.

The question of existence of ML-estimators in Gaussian graphical models can be rephrased as a positive definite matrix completion problem with additional rank constraints on the specified entries. If the underlying graph is chordal, both problems are well understood. However, for non-chordal graphs the only known results treat the simple cycle. I will extend those results to the bipartite graph $K_{2,m}$ and small grids. If time permits, I will discuss some asymptotic results and the connection to convex algebraic geometry. (Received January 19, 2010)