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Degree sequences, split graphs and geometric representations

A graph is a *split graph* if its vertex set can be partitioned into a clique and a stable set and is a *partitioned split graph* if the partition is also specified. The *inverse* of a partitioned split graph is formed by removing all edges within the clique and adding all edges between vertices in the stable set.

In this talk we consider two forms of the degree sequences of a graph: the conventional form and the block form. We show the effect on the block form of taking complements of graphs and inverses of split graphs, the latter of which is complicated by the fact that some split graphs have two different inverses. When there are two different inverses, we show how the degree sequences of these inverses are related to one another in both the conventional and block forms. We also demonstrate geometric interpretations of these results using Ferrers diagrams.

This is joint work with Karen Collins, Wesleyan University and Tantan Dai, Georgia Institute of Technology.