Designs on strongly regular graphs

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Abstract

There are situations in design of experiments where the experimental units are the vertices of a strongly regular graph, and we apply treatments to these units. To make the data analysis straightforward, the design can have a property called *commutative orthogonal block structure*, or COBS. This turns out to be equivalent to an *equitable partition* of the vertex set. We examine these designs for two classes of strongly regular graphs, the disjoint unions of complete graphs and the triangular graphs, which both arise in practical situations.