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Subplanes of projective planes from collineation subgroups

A finite projective plane π of order n is a symmetric balanced incomplete block design (BIBD) with parameters 2-$(n^2+n+1, n+1, 1)$. The elements of the design are called points, and the blocks are called lines. A subplane of π consists of points and lines of π that form a projective plane under the incidence relation inherited from π. In this talk, we present sufficient conditions for the existence of subplanes constructed from subgroups of the collineation group of the ambient plane. We also count the subplanes obtained through these constructions.

This is joint work with Stephen Brittain and Robert Coulter.