1173-05-316 **Matt Superdock*** (superdockm@rhodes.edu). *Simplicial complexes, finite projective planes, and colored configurations.*

In the 7-vertex triangulation of the torus, the 14 triangles can be partitioned as $T_1 \sqcup T_2$, such that each T_i represents the lines of a copy of the Fano plane $PG(2, \mathbb{F}_2)$. We generalize this observation by constructing, for each prime power q, a simplicial complex K with $q^2 + q + 1$ vertices and $2(q^2 + q + 1)$ facets consisting of two copies of $PG(2, \mathbb{F}_q)$.

Our construction works for any *colored k-configuration*, defined as a k-configuration whose associated bipartite graph G is connected and has a k-edge coloring $\chi\colon E(G) \to [k]$, such that for all $v \in V(G)$, $a, b, c \in [k]$, following edges of colors a, b, c, a, b, c from v brings us back to v. We give constructions of colored k-configurations from planar difference sets and commutative semifields. Then we give one-to-one correspondences between (1) Sidon sets of order 2 and size $k+1$ in groups with order n, (2) linear codes with radius 1 and index n in A_k, and (3) colored $(k+1)$-configurations with n points and n lines. (Received September 21, 2021)