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Talmage James Reid* (mmreid@gmail.com), Hume 314, University, MS 38677, and **Joshua Adam Gray** (jagray@olemiss.edu), Hume 305, University, MS 38677. *Matroids and k -arcs in Projective Geometries.*

This talk discusses the relationship between certain well-known substructures of projective space called k -arcs and clone-sets in matroids. Let $d, k \in \mathbb{Z}^+$ and q be a prime power. A k -arc of $PG(d, q)$ is a subset S such that $PG(d, q)|_S \cong U_{d+1, k}$. A pair of elements in a matroid are clones if the map that interchanges the two elements and fixes all other elements is an automorphism. For representable matroids, we relate these two substructures by using a result of Reid and Zhou. This research is joint with J. A. Gray. (Received January 25, 2010)