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Abstract

Linearly Kleiman groups and double cosets of stabilizers of totally isotropic subspaces of a unitary space.

The notion of the Kleiman group was introduced in the process of the investigation of sums of orbits of connected algebraic groups.

Let V be a linear space over a field K. A linear group $G < GL(V)$ is a linearly Kleiman group if for any linear subspaces $u, v < V$ there is an element $g \in G$ such that the pair $u, g(v)$ is in general position, that is, $\dim g(v) \cap u = 0$ or $\dim g(v) + \dim u = \dim V$.

Linearly Kleiman groups are classified in the case when $G = G(K)$ where G is a connected algebraic group and K is algebraically closed field of characteristic zero. Attempts to extend the notion of linear Kleiman groups and the result of their classification for the cases when K is any field and $G \leq \Gamma(K)$ where $\Gamma = SO$, SU, Sp is a classical algebraic group defined over K leads us to investigation of the structure of double cosets of stabilizers of totally isotropic subspaces of a unitary space. In this talk we give an appropriate description of such double cosets. Also, we discuss some related topics.