Orbits of parabolic subgroups on generalized symmetric spaces

Abstract:

Let $G$ be a connected reductive algebraic group defined over a field $k$ of characteristic not 2, \( \sigma \) an involution of $G$ defined over $k$, $H$ a $k$-open subgroup of the fixed point group of \( \sigma \) and $G_k$ (resp. $H_k$) the set of $k$-rational points of $G$ (resp. $H$). The homogeneous space $X_k := G_k/H_k$ is a generalization of a real reductive symmetric space to arbitrary fields and is called a generalized symmetric space.

Orbits of parabolic $k$-subgroups on these generalized symmetric spaces occur in various situations, but are especially of importance in the study of representations of $G_k$ related to $X_k$. In this talk we present a number of structural results for these parabolic $k$-subgroups that are of importance for the study of these generalized symmetric space and their applications.