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 \( X := G_k/H_k \) 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.