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**Helminck.** *Orbits of parabolic  $k$ -subgroups on symmetric  $k$ -varieties.*

Symmetric  $k$ -varieties are homogeneous spaces  $X_k := G_k^\theta \backslash G_k$ . Here  $G$  is a reductive connected algebraic group defined over a field  $k$ ,  $\text{char}(k) \neq 2$ , and  $G_k$  denotes the group of  $k$ -rational points of  $G$ . Further,  $\theta$  is an automorphism of order two of  $G$ , defined over  $k$ , and  $G^\theta$  is its fixed point group.

Orbits of parabolic  $k$ -subgroups on these varieties occur in various situations. Our motivating example comes from representation theory, where we choose  $k$  to be a local field. A central issue there is the decomposition of natural representations of  $G_k$  related to  $X_k$  into irreducible ones. The building blocks of these decompositions are families of intertwining operators from the  $C^\infty$ -vectors of induced representations from the  $k$ -points  $P_k$  of a parabolic  $k$ -subgroup to certain types of  $C^\infty$ -functions on  $X_k$ .

In this talk we present a number of structural results for the relevant parabolic  $k$ -subgroups that can be used at the actual construction of these intertwining operators. Besides that, we have for general  $k$  a description of the  $P_k$ -orbits on  $X_k$ . (Received September 24, 2012)