

1143-11-506

**Dubravka Ban, Kwangho Choiy and David Goldberg\*** (goldberg@math.purdue.edu),  
Department of Mathematics, 150 N. University Street, Purdue University, West Lafayette, IN  
47907. *Recent progress in  $R$ -groups in the non-quasi-split case.*

The Knapp-Stein  $R$ -group gives a description of parabolically induced from discrete series representations, and is constructed from the theory of intertwining operators, as studied by Knapp-Stein, and Harish-Chandra, among others. The Arthur  $R$ -group is constructed from the conjectural Langlands parameter, and is predicted to be equivalent to the Knapp-Stein  $R$ -group. When  $G$  is quasi-split and  $G'$  is an inner form, then a Levi subgroup,  $M'$  of  $G'$  will be an inner form of some Levi subgroup,  $M$  of  $G$ . So, these two Levi subgroups share an  $L$ -group, i.e.  ${}^L M = {}^L M'$  and hence there is a correspondence,  $\{\sigma\} \leftrightarrow \{\sigma'\}$ , between  $L$ -packets of  $M$  and those of  $M'$ . Thus, one can hope to determine the Arthur  $R$ -group attached to  $\sigma'$  in terms of the one for  $\sigma$ , and thus, conjecturally, determine the Knapp-Stein  $R$ -group attached to  $\sigma'$  in terms of that for  $\sigma$ . In this talk we discuss the progress the authors have made in recent years to expand the catalogue of known  $R$ -groups by using standard approaches to the Knapp-Stein  $R$ -group for the quasi-split case, proving the isomorphism with the Arthur  $R$ -group, and transferring data to the non-quasi-split inner form. (Received August 21, 2018)