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THE WEIZMANN INSTITUTE OF SCIENCE  
FACULTY OF MATHEMATICS AND COMPUTER SCIENCE  
Algebraic Geometry and Representation Theory Seminar

Room 155 ,Ziskind Building  
on Tuesday, Feb 25, 2020at 11:15

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Geometric restrictions on nilpotent orbits associated to distinguished representations of reductive groups.

Abstract:

Let  $G$  be a reductive group over a local field, and  $H$  be a spherical subgroup. An irreducible representation of  $G$  is said to be distinguished by  $H$  if it has an  $H$ -invariant continuous linear functional. The study of distinguished representations is of much current interest, because of their relation to the Plancherel measure on  $G/H$  and to periods of automorphic forms.

While a complete classification seems to be out of reach, in a joint work with E. Sayag we established simple geometric necessary conditions for distinction. The conditions are formulated in terms of the nilpotent orbit associated to the representation. In the talk I will focus on the case of real reductive  $G$ , based on the recent preprint [arXiv:2001.11746](https://arxiv.org/abs/2001.11746). Our main tool is the theory of associated varieties of modules over the Lie algebra of  $G$ .