

Sheaves on semi-infinite flag manifolds and Langlands duality

Let G, G^L be Langlands-dual reductive groups. The geometric Satake equivalence is the wonderful fact that one can realize the monoidal category of G^L -representations as a category of constructible sheaves on a space built from G , namely its affine Grassmannian. After recalling this story, we will present similar realizations of the representations of every parabolic and Levi subgroup of G^L as sheaves on the semi-infinite partial flag manifolds of G . Time permitting, we will describe some natural extensions, including the realizations of the representations of various quantum groups.

The contents of this talk build on work and conjectures of many people, notably Arkhipov, Bezrukavnikov, Braverman, Feigin, Finkelberg, Frenkel, Gaitsgory, Lusztig, Mirkovic, Vilonen, and Raskin, and is the subject of work in progress with Campbell, Chen, Lysenko, and Achar-Riche.