Langlands duality for real groups, via the affine Grassmannian

Elizabeth Mann
Department of Mathematics
MIT

Abstract

The Langlands dual of a complex group arises naturally out of the geometry of its affine Grassmannian. I'll begin by briefly reviewing this classical (geometric) Satake isomorphism, as well as its extension by Kazhdan and Lusztig to the affine Hecke algebra. I'll then describe joint work with Ian Grojnowski, in which we give the analogous statements & geometric picture for real groups. While a real group does not have a Langlands dual, a marvelous result of Vogan describes a duality on the irreducible admissible representations of real groups; and it is this duality which arises in our geometric picture.