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Derived Satake equivalence and geometric restriction to a Levi subgroup

Let G be a complex reductive algebraic group. Let \mathcal{N} denote the nilpotent cone in its Lie algebra, and let Gr denote the affine Grassmannian of its Langlands dual group. The celebrated geometric Satake equivalence is an equivalence of tensor categories between spherical perverse sheaves on Gr and representations of G . Following methods of Arkhipov–Bezrukavnikov–Ginzburg, this can be extended to an equivalence of triangulated categories between the spherical derived category of perverse sheaves on Gr and the perfect derived category of coherent sheaves on \mathcal{N} . It is natural to ask, “Is this equivalence compatible with restriction to a Levi subgroup?” There are surprising subtleties involved in even making this question precise, essentially because the spherical derived category on Gr is the “wrong” category from the viewpoint of the Weil conjectures. I will explain these subtleties and how one may overcome them, leading to a positive answer to the question above. This is joint work with S. Riche.