

Dario Beraldo: The extended Whittaker category

In analogy with the classical theory of Whittaker coefficients for automorphic functions, we construct a Fourier transform functor, called coeff_G , from the DG category of D-modules on Bun_G to a certain DG category $\text{Wh}(G, \text{ext})$, called the extended Whittaker category. This construction allows to formulate the compatibility of the Langlands duality functor $\mathbb{L}_G : \text{IndCoh}_N(\text{LocSys}_{\check{G}}) \rightarrow D(\text{Bun}_G)$ with the Whittaker model.

For $G = \text{GL}_n$ and $G = \text{PGL}_n$, we prove that coeff_G is fully faithful. This result guarantees that, for those groups, \mathbb{L}_G is unique (if it exists) and necessarily fully-faithful. The proof ultimately relies on the theory of Drinfeld's quasi-maps and on the contractibility of the space of rational maps $X \dashrightarrow \mathbb{P}^n$.