The Drinfeld-Gaitsgory operator on automorphic functions

Abstract:

Let $F$ be a function field and $G$ a connected split reductive group over $F$. We define a "strange" operator between different spaces of automorphic functions on $G(\mathbb{A})/G(F)$, and show that this operator is natural from the viewpoint of the geometric Langlands program via the functions-sheaves dictionary. We discuss how to define this operator over a number field by relating it to pseudo-Eisenstein series and inversion of the standard intertwining operator. This operator is also connected to Deligne-Lusztig duality and cohomological duality of representations over a local field.