School of Mathematics
Tata Institute of Fundamental Research

7 November, 2024

Ph.D. Thesis Defense

Speaker	:	***Saniya Hari Wagh***
Title	:	***Character sheaves on certain commutative group ind-schemes and inertial local Langlands correspondence for tori.***
Date & Time	:	***Thursday, 14 November, 2024 at 2:30 p.m.***
Venue	:	**Lecture Room (AG-77)**

Abstract

Let $\mathfrak{cpu}_k^0$ denote the category of perfect connected commutative unipotent algebraic groups. We have a duality functor on this category due to Serre. The dual of an object of $\mathfrak{cpu}_k^0$ parametrizes the multiplicative local systems (character sheaves) on it. In the first part of this talk, we extend this notion of dual to the category of Tate objects in the exact category $\mathfrak{cpu}_k^0$ denoted by $Tate(\mathfrak{cpu}_k^0)$. The category $Tate(\mathfrak{cpu}_k^0)$ contains certain unipotent group ind-schemes. As an application, we describe the dual of the additive group over local fields.

In the second part, we consider a torus T over a complete discrete valued field with an algebraically closed residue field. We obtain the connected commutative pro-algebraic group L^+T by applying the Greenberg functor to the connected Néron model of T. We then give a canonical isomorphism between the abelian group of the multiplicative local systems (character sheaves) on L^+T and the group of inertial local Langlands parameters. We call this isomorphism the inertial local Langlands correspondence. We also relate this correspondence to the classical local Langlands correspondence for tori using the sheaf-function correspondence.

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