DISSERTATION
DEFENSE

A local-global principle for adjoint groups over function fields of p-adic curves

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Abstract: Let k be a number field and G a semisimple simply connected linear algebraic group over k. The Kneser conjecture states that the Hasse principle holds for principal homogeneous spaces under G. Kneser's conjecture is a theorem due to Kneser for all classical groups, Harder for exceptional groups other than E_8, and Chernousov for E_8. It has also been proved by Sansuc that if G is an adjoint linear algebraic group over k, then the Hasse principle holds for principal homogeneous spaces under G.

Now let $p \in \mathbb{N}$ be a prime with $p \neq 2$, and let K be a p-adic field. Let F be the function field of a curve over K. Let Ω_F be the set of all divisorial discrete valuations of F. It is a conjecture of Colliot-Thélène, Parimala and Suresh that if G is a semisimple simply connected linear algebraic group over F, then the Hasse principle holds for principal homogeneous spaces under G. This conjecture has been proved for all groups of classical type. In this talk, we ask whether the Hasse principle holds for adjoint groups over F, motivated by the number field case. We give a positive answer to this question for a class of adjoint classical groups.

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