Speaker: Andrew Obus

Title: Toward a classification of local Oort groups

Abstract: The local lifting problem asks: for $k$ an algebraically closed field of characteristic $p$, which finite Galois extensions of $k[[t]]$ lift to characteristic zero? A Galois group for which all such extensions lift is called a ”local Oort group” (for $p$), and the (now proven) ”Oort conjecture” states that cyclic groups are local Oort groups for all $p$. We will discuss how obstructions to lifting encoded in the wild ramification filtration of the extension rule out all possibilities for local Oort groups other than cyclic groups, dihedral groups, and $A_4$ (for $p = 2$). Lastly, we will show that $A_4$ is, in fact, a local Oort group.

In the preliminary (4:00 pm) talk, we will recall the theory of higher ramification filtrations of local fields with perfect residue fields, the relationship between wild ramification and the different, and the relevant Kummer and Artin-Schreier(-Witt) theory.