

The University of Chicago
ALGEBRAIC GEOMETRY SEMINAR

Wednesday, March 11th, 2015
4:30 – 6:00 pm, Eckhart 312

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**The local lifting problem, the Oort Conjecture, and
its generalizations.**

Let k be an algebraically closed field of characteristic p . The local lifting problem asks if the action of a finite group G by k -automorphisms on $k[[t]]$ can be lifted to an action of G on $R[[t]]$, where R is some characteristic zero DVR with residue field k . This is motivated by the problem of lifting a Galois branched cover of smooth projective algebraic curves from characteristic p to characteristic zero.

The Oort conjecture (now a theorem of Obus-Wewers and Pop) states that cyclic actions can always be lifted (for some R). We will discuss a generalization of this conjecture to the case of metacyclic actions, as well as recent progress by the speaker on this problem. A fundamental technique is the use of Kato's generalization of the Swan conductor.