Lectures on **The smoothness conjecture and the norm residue isomorphism theorem**

Speaker: Mathieu Florence

Abstract:

These two talks give an account of the project on smooth profinite groups, started ten years ago with Charles De Clercq. It provides a formalization of Kummer theory. Its main feature is, roughly speaking, to replace Galois cohomology with finite coefficients, by Hochschild cohomology of linear algebraic groups over Z (of a very specific shape), with coefficients in suitable representations. The (most recent) formulation of the smoothness conjecture, is then a formal version of the norm-residue isomorphism theorem of Rost-Voevodsky, that it implies at a very low cost. It also implies a bound on symbol length. Due to the recent work of Merkurjev and Scavia, on the non-liftability of the generic Galois representation, it is clear that a key feature of our previous strategy, involved a wrong lifting statement.
Since then, we entirely rethought a "realistic" lifting statement, leading to a lighter formalism and improved consequences. I am enthusiastic to present the general framework, and some results obtained so far.

Schedule: March 4, 11, at 2:30 p.m.