

Speaker: Philippe Cassou-Noguès.

Title: Quadratic forms, twists and periods.

Abstract: One can attach to a quadratic form on a field cohomological invariants which play an important role in the classification of such forms. Given a finite group scheme G , and a G -form, we show how to twist this form by a G -torsor and we give comparison formulas between the Hasse-Witt invariants of the form and its twist. As an application, we fully describe the trace form of any Galois extension of a global field, when the Galois group is 2-reduced. Tannakian categories provide interesting situations where to apply these formulas. We introduce the category of Nori's motives and we show how to generalize Serre's trace formula in higher dimension, by considering the realizations of Betti and de Rham of a well chosen orthogonal Nori's motive. This is a joint work with T. Chinburg, B. Morin and M.J Taylor.