Title

Oberwolfach Seminar: Motivic Integration

Workshop ID

1342b

Organisers

- Antoine Chambert-Loir (Orsay)

- Raf Cluckers (Lille)

- François Loeser (Paris)

- Johannes Nicaise (Leuven)

Date

13 Oct - 19 Oct 2013

Programme

Over the last fifteen years, Motivic Integration has been the object of quite intense developments. In particular, as several different theories are now available, it is becoming more difficult for newcomers to enter the subject and in particular to figure out the differences and common features between the various approaches. The main purpose of this Seminar would be to provide an introduction to the state of the art by presenting in detail the various theories and by illustrating them with some of their more spectacular applications, which range over a wide array of fields, from Singularity Theory to Automorphic Forms.

The programme is divided into the following four series of lectures:

- Classical Motivic Integration

- Motivic Integration via formal schemes and weak Néron models

- Definability and motivic functions defined by integrals

- Definability and motivic integration: the Hrushovski-Kazhdan approach.

Preparatory reading

In most cases, it will suffice to understand the main definitions and the statements of the main theorems: you are not expected to work through all the proofs.

- Some knowledge of the language of basic Algebraic Geometry as in the first chapters of books by Hartshorne, Shafarevich, Mumford.

- Some familiarity with discrete valuation rings, p-adic numbers, Hensel's lemma (cf. Borevich-Shafarevich or Serre Local Fields)

- Though not mandatory, some familiarity with basic notions of Model Theory as in the first chapter of Model Theory: an Introduction by D. Marker