JOSEPH AYOUB
Université Paris 7

On cdh-descent for motives over arbitrary fields

Let $DM'_{cdh}(k)$ be the variant of Voevodsky's category where the big Nisnevich site Sm/k is replaced by the big cdh site Sch/k. We prove that the canonical functor: $DM_{Nis}(k)->DM_{cdh}(k)$ admits a section. We get in particular the following weak cdh-descent result: Let H.-¿X be a simplicial cdh-hypercover of a smooth k-scheme X. Assume that all the component H_n are smooth over k. Then $Z_{tr}(H.)->Z_{tr}(X)$ is an A^1-weak equivalence.

PAUL BALMER
ETH Zurich

Tensor triangular geometry

"Tensor triangular geometry" is the study of tensor triangulated categories by means of geometric ideas, mainly inspired by algebraic geometry and modular representation theory. In this talk, we recall the foundations and present some applications, for instance with the construction of invertible objects.

THOMAS GEISSER
University of Southern California

The affine part of the Picard-scheme

If X is a normal proper scheme over a perfect field, then the Picard variety is an abelian variety. For general proper schemes, it is an extension of an abelian variety by a linear algebraic group. We determine the torus and give a description of the unipotent part of the Picard variety.

VLADIMIR GULETSKI
Institute for Advanced Study

Algebraic cycles on certain threefolds over a field

tba

ANNETTE HUBER
Universitaet Leipzig

A p-adic analogue of Borel's regulator

We define a p-adic analogue of the Borel regulator for the K-theory of p-adic fields. The van Est isomorphism in the construction of the classical Borel regulator is replaced by the Lazard isomorphism. The main result relates this p-adic regulator to the Bloch-Kato exponential and the Soulé regulator. On the way we give a new description of the Lazard isomorphism for certain formal groups.

UWE JANNSEN
Universitat Regensburg

On embedded resolution of two-dimensional excellent schemes

This is a report on joint work (in progress) with Vincent Cossart and Shuji Saito. It is well-known how to resolve singularities for two- dimensional schemes, by alternating normalizing and blowing up closed points. But this process is not suited for embedded resolution, where one needs controlled blow-ups in regular centers. For hypersurfaces over a field, embedded resolution (still in the two-dimensional case) was announced and sketched by Hironaka, but some gaps were found and partly fixed by V. Cossart. The present work aims at working out a full proof in the general situation, at the same time also achieving good position with respect to given divisors in an ambient scheme. This refined form is used in applications on motivic cohomology.

BRUNO KAHN
Université Paris 7

The Brauer group and indecomposable (2,1)-cycles

For a smooth projective variety X over an algebraically closed field k, the group of indecomposable (2,1)-cycles on X is the quotient of $H^1(X; K_2)$ by the tensor product of Pic(X) with k*. We shall relate this group to other invariants of X : its Brauer group, the transcendental part of its motive (when dimX = 2) and its birational motivic cohomology.

MAX KAROUBI
Université Paris 7

Twisted K-theory, old and new

Twisted K-theory has its main origin in the paper with P. Donovan

`http://www.numdam.org/item?id=PMIHES_1970__38__5_0`

The objective of this lecture is to revisit the subject with more modern methods in the light of new developments inspired by Mathematical Physics. See Witten (Arxiv hep-th/9810188), J. Rosenberg

`http://anziamj.austms.org.au/JAMSA/V47/Part3/Rosenberg.html`

, Laurent-Gentoux, Tu, Xu (ArXiv math/0306138) and Atiyah, Segal (ArXiv math/0407054), among many other authors.

The unifiyng theme in our presentation is the notion of K-theory of Z/2-graded algebras, from which most of the classical theorems in twisted K-theory are derived.

We also prove some new results in the subject : a Thom isomorphism using Fredholm operators in an Hilbert space, explicit computations in the equivariant case and new Adams operations.

MARC LEVINE
Northeastern University

Algebraic cobordism and Donaldson-Thomas invariants

This is a joint work with R. Pandharipande. We give a new presentation of the Levine-Morel algebraic cobordism using the relation of "double point cobordism". As application, we prove a number of conjectures on the generating function for degree zero Donaldson-Thomas invariants.

ALEXANDER MERKURJEV
University of California, Los Angeles

Unramified cohomology of algebraic varieties

Abstract. Let X be a complete algebraic variety over a field F. We show that the functor taking a cycle module M over F to the group of unramified elements in M(F(X)) is represented by a cycle module. It is shown that every unramified element in M(F(X)) for all M is constant if and only if the degree map $CH_0(X_L) \to Z$ is an isomorphism for every field extension L/F. Functorial properties of the unramified elements will be discussed.

Sasha

ALEXANDER NENASHEV
York University

Push forwards in the Witt theory of schemes

We introduce push-forwards (trace maps) along projective morphisms in the Witt theory of (smooth) varieties over a field of characteristic different from 2, and prove their properties. Our construction of such trace maps is based on the use of twisted Thom isomorphisms and the deformations to the normal bundle.

ANDREAS ROSENSCHON
SUNY Buffalo

The modified Ceresa cycle modulo q

We give examples of smooth projective varieties X over p-adic fields such that for suitable primes q the Chow group in codimension 2 modulo q is infinite. This is joint work with V. Srinivas.

MARCO SCHLICHTING
Louisiana State University

Hermitian K-theory and A^1-homotopy theory

I plan to talk about the relation between K-theory, hermitian K-theory and Witt-groups, and about A^1-representability of the latter for singular varieties.

ANDREI SUSLIN
Northwestern University

The category EM^- over non perfect fields

tba

BURT TOTARO
Cambridge University

Birational geometry of quadrics using Chow groups

A fundamental problem of the theory of quadratic forms is to classify quadrics over an arbitrary field up to birational equivalence. For everywhere non-smooth quadrics in characteristic 2, we can solve some of the main problems about birational classification, which remain open for all other types of quadrics. As in Karpenko and Merkurjev's theorem on the essential dimension of quadrics, the key is to study the Chow motives of quadrics (or, in more elementary terms, Chow groups of products of quadrics).

MARK WALKER
University of Nebraska

The K-theory of toric varieties

I will apply the recent advances in the understanding of the K-theory of singular varieties due to Cortinas, Haesemeyer, Schlichting, and Weibel to the K-theory of toric varieties. In particular, I will give a new proof of Gubeladze's "nilpotence conjecture" for toric varieties.

CHARLES A. WEIBEL
Rutgers University

Bass' NK groups and cdh-fibrant Hochschild homology

By definition, $NK_0(R)$ is $K_0(R[t])$ modulo $K_0(R)$. We give a formula for this group when R is of finite type over a field of characteristic zero. The group is bigraded and determined by its typical pieces, which are the cdh cohomology groups $H^p(R, \Omega^p)$. We also partially answer a question of Bass by proving that if $NK_0(R)$ and $NK_n(R)$ vanish for all negative n then $K_0(R) = K_0(R[t, u, v, ..., z])$.