

K-THEORY WORKSHOP

ABSTRACTS

Monday 23 July

11:00 - 11:50 **Joseph Ayoub**

On the proof of the conservativity conjecture

The conservativity conjecture asserts that the realisations of geometric motives are conservative, i.e., reflect isomorphisms. I'll discuss a proof of this conjecture for the classical realisations over a characteristic zero base.

12:00 - 12:50 **Birgit Richter**

Higher topological Hochschild homology of $\mathbb{Z}/p^m$ with reduced coefficients.

Topological Hochschild homology of $\mathbb{Z}/p^m$ with coefficients in $\mathbb{Z}/p$ for $m > 1$ was determined by Pirashvili and Brun. Juggling formulas for higher THH allow us to calculate higher THH in these cases. In fact, we obtain a splitting result for higher THH of R/a with coefficients in R/p where (p) is a principal maximal ideal in a commutative ring R , p is not a zero divisor and a is an element of $(p)^2$. This is a report on joint work with Bobkova, Hoening, Lindenstrauss, Poirier and Zakharevich.

15:00 - 15:50 **Noé Bárcenas**

Positive Scalar Curvature and low degree group homology

We will examine *stolz' positive scalar curvature in connection with an equivariant pontrjagin character for real equivariant k theory and extend and generalize recent results by Piazza-Schick and Xie-Yu. This is joint work with Rudolf Zeidler (Münster).

16:00 - 16:20 **Khashayar Sartipi** (Contributed talk)

Paschke Categories and K -homology

In the paper "Symmetric K -Theory Spectra of C^* -Categories" for a given C^* -algebra A , Mitchener defines a C^* category, where homotopy groups of a certain topological space corresponding to the category, are the Kasparov K groups $KK(A, C)$, where C is the complex numbers. In this talk, using Paschke duality, we give a simpler construction of an exact C^* -category corresponding to a C^* -algebra A , called the Paschke category of A , whose Quillen K -groups are K -homology groups $KK(A, C)$. This construction has the expected functorial properties, and we construct an exact functor from the category of locally free sheaves on a compact complex manifold X , to the category of bounded exact sequences in the Paschke category of $C(X)$.

16:50 - 17:40 **Ulrich Bunke**

Coarse K -homology for left-exact categories

I will review the fundamental definitions of coarse geometry and in particular introduce the notion of an equivariant coarse homology theory. Then I explain how one can naturally associate to every left-exact ∞ -category $\mathbf{C}$ an equivariant coarse K -homology theory $K\mathcal{X}_{\mathbf{C}}^G$ with values in the stable ∞ -category of non-commutative motives of Blumberg-Gepner-Tabuada. The value $K\mathcal{X}_{\mathbf{C}}^G(X)$ on a G -bornological coarse space X is defined as the universal localizing invariant of the stabilization of the left-exact category of X -controlled objects in $\mathbf{C}$. The talk reviews results of a joined project with Ch.Winges and D.C.Cisinski.