University of Notre Dame Department of Mathematics

TOPOLOGY SEMINAR

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Will give a lecture entitled:

Integral Excision in Algebraic K-theory

On

Thursday, March 31, 2011

At

12:45 PM

In

258 Hurley Hall

Abstract

Algebraic K-theory has good localization properties, but in the presence of singularities there is a highly nontrivial obstruction to excision. For instance, if a scheme is obtained by gluing two closed subschemes, there is in general no exact Mayer-Vietoris sequence.

However, the necessary correction term is available through variants of cyclic homology, at least in the affine case. This was proved after rationalization by Cortinaz and after profinite completion by Geisser and Hesselholt for the discrete case.

We will discuss the integral case for ring spectra: If a square of ring spectra satisfies hypotheses essentially saying that it is opposite to a gluing of closed embeddings of schemes, then the integral cyclotomic trace $K \to TC$ induces an equivalence of correction terms. In other words, the homotopy fiber of the cyclotomic trace satisfies "excision for closed embeddings."

So, if one is able to calculate TC in a given situation, this means that its K-theory is accessible through assembling the K-theories of simpler closed subspaces. The theorem works equally well for the non-commutative case.

This is joint work with Harald Kittang.