THE TRANSFER MAP OF FREE LOOP SPACES

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Let $R \to A$ be a map of rings (or ring spectra) and suppose that A is finitely generated projective (or perfect) as an R-module. Then there is a wrong-way "transfer" map on algebraic K-theory, $K(A) \to K(R)$. In particular, when $E \to B$ is a fibration whose fiber F is a finite CW complex, this gives a wrong-way map on Waldhausen's functor $A(B) \to A(E)$. We will ask a few fundamental questions about this transfer, and present the beginning of a program to answer these questions using trace methods. Our main result concerns the corresponding transfer in topological Hochschild homology (THH), which is a stable map of free loop spaces $LB \to LE$. Aside from the insights into algebraic K-theory, these results appear to give us new computational tools for the homology of free loop spaces. This is joint work with John Lind.