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„Bivariant theories, cobordism categories, A-theory, h-cobordisms.”

Abstract:

I will discuss an approach to the Dwyer-Weiss-Williams index theorems for topological and for smooth manifold bundles, which is based on a formalism for bivariant theories and known results about cobordism categories. In the smooth case, the theorem implies that a canonical transformation from stable homotopy to the algebraic K-theory of spaces is natural with respect to transfer maps. I will then present some results on the analogous question for Waldhausen's splitting map from the algebraic K-theory of spaces to stable homotopy. This splitting map gives a splitting of the algebraic K-theory of spaces into stable homotopy and the Diff-Whitehead space. If time permits, I will present some results on the homotopy type of the h-cobordism category and discuss its connection with the Diff-Whitehead space. (This is joint work with W. Steimle.)