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„The homotopy type of algebraic cobordism categories.“

Abstract:

joint with B. Calm`es, E. Dotto, Y. Harpaz, M. Land, K. Moi, D. Nardin, T. Nikolaus, W. Steimle

I will introduce cobordism categories of Poincar'e chain complexes complexes and more generally Poincar'e objects in an arbitrary hermitian infinity category (following Lurie). Such cobordism categories on the one hand admit very interesting functors from the geometric cobordism categories studied to great effect by Galatius, Madsen, Randal-Williams, Segal, Tillmann, Weiss, and many more. Such functors provide a unified picture of various manifold invariants and imbue them with strong coherence and excision properties.

On the other hand, the homotopy types of these algebraic cobordism categories can be determined rather explicitly in terms of algebraic K-, L-theory and Grothendieck-Witt-spectra. As a special case of our results we obtain solutions to several conjectures of Hesselholt, Madsen, Karoubi and others on the structure of the Grothendieck-Witt groups of ordinary rings, in particular an almost complete description in the case of the integers.