Unfolding of symmetric monoidal (∞, n)-categories

R. Haugseng

Rune Haugseng (rune.haugseng@ntnu.no)
Norwegian University of Science and Technology (NTNU)

Thomas Nikolaus (nikolaus@uni-muenster.de)
University of Münster

Abstract.

In Lurie's article on the Cobordism Hypothesis [1], he discusses a description of symmetric monoidal (∞, n)-categories with duals for objects and certain adjoints as "chain complexes" of symmetric monoidal ∞-categories with duals, but does not give a proof. This gives a surprisingly simple description of symmetric monoidal (∞, n)-categories with duals that should be useful both in connection with extended TQFTs and in stable homotopy theory. We will give a proof of this "unfolding" equivalence in forthcoming work, based on a general description of closed symmetric monoidal $\mathcal{V}$-enriched ∞-categories as lax symmetric monoidal functors to $\mathcal{V}$. In this talk I will explain how this comparison works, focusing on the simplest cases (for $n = 2$ and 3).

References

[1] J. Lurie, *On the classification of topological field theories*, Current developments in mathematics, 2008, Int. Press, Somerville, MA, 2009, pp. 129—280, available at http://math.ias.edu/~lurie/papers/cobordism.pdf.