TOPOLOGY SEMINAR

Moritz Groth (Radboud)

Grothendieck derivators and the additivity of traces

Wednesday, April 10th, 4:00pm, in 381-T

(note special **DAY** and **ROOM**)

Abstract: Peter May proved that in a category which is both triangulated and monoidal in a compatible way, the categorically defined Euler characteristic of dualizable objects is additive with respect to distinguished triangles. However, it is impossible to establish a more general additivity result for traces at the level of triangulated categories. In this talk we want to advertise stable, monoidal derivators as a framework in which to establish and generalize such additivity results.

The theory of derivators (going back to Grothendieck, Heller, and others) provides an axiomatic approach to homotopy theory. It adresses the problem that the rather crude passage from model categories to homotopy categories results in a serious loss of information. In the stable context, the typical defects of triangulated categories (non-functoriality of cone construction, lack of homotopy colimits) can be seen as a reminiscent of this fact. The simple but surprisingly powerful idea behind a derivator is that one should form homotopy categories of various diagram categories and also keep track of the calculus of homotopy Kan extensions.

The aim of this talk is to give a short introduction to the theory and to (hopefully) advertise derivators as a convenient, 'weakly terminal' approach to axiomatic homotopy theory.