

# Topology Seminar

**Marc Hoyois**

of MIT will be speaking on

## Secondary $K$ -theory and the categorified Chern character

on October 26 at 4:30 in  
MIT Room 2-131

The secondary  $K$ -theory of a derived stack  $X$  is the  $K$ -theory of 2-vector bundles on  $X$ , also known as smooth proper  $k$ -linear dg-categories when  $X = \mathrm{Spec}(k)$ . It receives nontrivial maps from several interesting invariants: the Brauer spectrum of  $X$ , the iterated  $K$ -theory  $K(K(X))$ , and the Grothendieck ring of varieties (if  $X$  is a field of characteristic zero). Toën and Vezzosi have constructed a character map associating to every 2-vector bundle a torus-invariant function on the double free loop space of  $X$ . I will explain how to refine their construction to obtain a secondary Chern character on secondary  $K$ -theory. This involves a localization theorem for traces in symmetric monoidal  $(\infty, 2)$ -categories and a categorified version of the ordinary Chern character, which is a functor from noncommutative mixed motives over  $X$  (in the sense of Kontsevich) to  $S^1$ -equivariant perfect complexes on  $LX$ . This is joint work with Sarah Scherotzke and Nicolò Sibilla.