

1077-55-1274

**David Hector Ayala\*** ([davidayala.math@gmail.com](mailto:davidayala.math@gmail.com)), 19 Hanson Street, Somerville, MA 02143.

*Weak  $n$ -categories are sheaves on  $d \leq n$ -manifolds.* Preliminary report.

This talk will present a geometric setting equivalent to the theory of weak  $n$ -categories in the sense of Rezk. Specifically, I will explain how a weak  $n$ -category is indexed by the space of configurations of points in the diagram of projections

$$\mathbb{R}^n \rightarrow \mathbb{R}^{n-1} \rightarrow \dots \rightarrow \mathbb{R}^0;$$

and as so, from a weak  $n$ -category we will construct a sheaf on a site of iterated submersions of framed  $n$ -manifolds which are equipped with a configuration of points. Applied to  $E_n$ -algebras, this construction is chiral homology. A theorem will be stated that this construction implements an equivalence between weak  $n$ -categories and sheaves on this site. This work is joint with Nick Rozenblyum. (Received September 18, 2011)