Topology Seminar

Emily Riehl

of Harvard University will be speaking on

The formal category theory of (∞,n)-categories

on March 16 at 4:30 in
MIT Room 2-131

Pioneering work of Andre Joyal and Jacob Lurie has shown that ordinary category theory can be extended to quasi-categories ("∞-categories"), a type of (∞,1)-category. In joint work with Verity, we show that the category theory of quasi-categories is 2-categorical: new definitions of the basic notions - (co)limits, adjunctions, fibrations - equivalent to the Joyal-Lurie definitions, can be encoded in the homotopy 2-category of quasi-categories. Our 2-categorical proofs in the homotopy 2-category restrict to the classical ones in the sub 2-category CAT. We give a short list of axioms, satisfied by (iterated) complete Segal spaces, that suffice for this homotopy 2-categorical development, so this "formal" approach to the category theory of quasi-categories immediately extends to other models of higher homotopical categories.