Topology Seminar

Maria Basterra

of University of New Hampshire will be speaking on

Operads with Homological Stability detect Infinite Loop Spaces.

on March 19 at 4:30 in
MIT Room 2-131

An earlier result of Tillmann shows that a carefully constructed surface operad detects infinite loop spaces in the sense that its algebras group complete to infinite loop spaces. An important ingredient in this result is Harer's homological stability theorem for mapping class groups of surfaces.

Motivated by this example, we consider a general class of operads in the category of spaces that satisfy certain homological stability conditions (OHS). We prove that such operads detect infinite loop spaces in the sense above. In fact, we show that for these operads group completion provides a functor from their category of algebras to the category of infinite loop spaces.

I will sketch the proof of this result and, as time permits, present some examples and applications.