Algebra/Topology Seminar

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The Unstable Adams Spectral Sequence for Periodic Homology Theories

Thursday, February 22, 2018
1:15 p.m. in ES-143

ABSTRACT. The Bousfield-Kan (or unstable Adams) spectral sequence can be constructed for various homology theories such as Brown-Peterson homology theory BP, Johnson-Wilson theory $E(n)$, or Morava E-theory E_n. For nice spaces like spheres the E_2-term is given by Ext in a category of unstable comodules. For periodic theories I will show how these Ext groups can be interpreted as Ext in the category of comodules over a certain bialgebra—the monoid algebra of the monoid of endomorphisms of the Honda formal group law. This is by analogy with the stable setting in which one considers the group of automorphisms, i.e., the Morava Stabilizer Group. I will spend a good part of the talk on the specific example of K-theory, where things are especially nice. Then I will discuss generalizations to higher periodicity, and if time permits, I'll say a little bit about the unstable telescope conjecture.