Department of Mathematics
University of Notre Dame

TOPOLOGY SEMINAR

Guest Speaker: Piotr Pstrągowski
Northwestern University

Date: Tuesday, October 30, 2018
Time: 2:30 PM
Location: 258 Hurley Hall

Lecture Title:
Chromatic homotopy is algebraic when $p > n^2+n+1$

Abstract

Talk I: 2:30-3:30
Talk II: 4:00-5:00

In chromatic homotopy theory, one stratifies the stable homotopy category by fixing a prime and looking at the $E(n)$-local parts, which informally see "information up to height n". As the height grows, these categories become increasingly intricate and converge to the p-local homotopy theory in a precise sense. On the other hand, it has been observed that when the prime is large relative to the height, then the $E(n)$-local category simplifies considerably - for example, the $E(n)$-local homotopy groups of spheres admit a purely algebraic description. In this talk, we show that when $p > n^2+n+1$, the homotopy category of $E(n)$-local spectra is equivalent to the homotopy category of differential $E(n)_*E(n)$-comodules, giving a precise sense in which chromatic homotopy theory is algebraic at large primes. This extends the work of Bousfield at $n = 1$ to all heights, and affirms a conjecture of Franke.

Piotr Pstrągowski - Northwestern University