



Speaker: John Harper
The Ohio State University

Wednesday, October 7, 2015

10:00 AM

258 Hurley Hall

Title: Derived Koszul duality of spaces and structured ring spectra

Abstract:

Consider a flavor of structured ring spectra that can be described as algebras over an operad \mathcal{O} in spectra. A natural question to ask is when the fundamental adjunction comparing \mathcal{O} -algebra spectra with coalgebra spectra over the associated Koszul dual comonad \mathcal{K} can be modified to turn it into an equivalence of homotopy theories. In their 2012 *Selecta Math.* paper, Francis and Gaitsgory conjecture that replacing \mathcal{O} -algebras with the full subcategory of homotopy pro-nilpotent \mathcal{O} -algebras will do the trick. In joint work with Kathryn Hess we show that every 0-connected \mathcal{O} -algebra is homotopy pro-nilpotent. This talk will describe recent work, joint with Michael Ching, that resolves in the affirmative the 0-connected case of the Francis-Gaitsgory conjecture. If time permits, we will also outline recent work, joint with Jake Blomquist, on derived Koszul duality for spaces.