

## Algebraic K-Theory Seminar

### *On Koszul Duality in Higher Topoi*

Jonathan Beardsley (Georgia Tech)

**Abstract:** In this talk, I will describe joint work with Maximilien Péroux on understanding Koszul duality in  $\infty$ -topoi and  $n$ -topoi. The main theorem of this work is that given a group object  $G$  of an  $n$ -topos, there is an equivalence of  $\infty$ -categories between the category of  $G$ -modules in that topos and the category of  $BG$ -comodules, where  $BG$  is the classifying object for  $G$ -torsors. In particular, given any loop space  $\Omega X$ , and any  $\infty$ -topos  $T$ , there is an equivalence of  $\infty$ -categories between objects of  $T$  with an  $\Omega X$ -action, the slice topos over the "constant sheaf" valued in  $B\Omega X$ , and objects with a  $B\Omega X$ -coaction. This is a generalization of the classical equivalence between  $G$ -spaces and spaces over  $BG$  for  $G$  a topological group.

Wednesday, November 13 at 11:00 AM in 1227 SEO