

# Topology Seminar

**Dylan Wilson**

of University of Chicago will be speaking on

## Slice spheres in equivariant and chromatic homotopy theory

on October 23 at 4:30 in  
MIT Room 2-131

Motivated by a program of Hill-Hopkins-Ravenel to prove the 3-primary Kervaire invariant problem, we are led to study a slight generalization of (induced) representation spheres called slice spheres. These are simple to define: a compact  $G$ -spectrum is a slice sphere if each of its geometric fixed points is a finite wedge of spheres. These objects appear fundamental in carrying over techniques from the case  $G = C_2$  to other groups, such as  $C_p$ , and the goal of the talk is to give various examples of how they show up in interesting settings. As a general application, we describe how one may compute the  $n$ -slice of a spectrum using slice spheres. Then we specialize to the case  $G = C_p$  and discuss ongoing work on the 3-primary Kervaire invariant problem, following a program of Hill-Hopkins-Ravenel. We describe several methods of attack, and our current partial results. These include an equivariant refinement of  $\alpha_1$ , some information about the  $C_p$ -equivariant dual Steenrod algebra, and a computation of the  $C_3$ -slices of topological modular forms with full level 2 structure.