

## ***TOPOLOGY SEMINAR***

**Guest Speaker: Luis Alexandre Pereira**  
**University of Virginia**

**Date:** Tuesday, November 22, 2016

**Time:** 3:00 PM

**Location:** 258 Hurley Hall



**Lecture Title:**

**Genuine equivariant operads**

***Abstract***

A fundamental result in equivariant homotopy theory due to Elmendorf states that the homotopy theory of  $G$ -spaces, with  $w.e.s$  measured on all fixed points, is Quillen equivalent to the homotopy theory of  $G$ -coefficient systems in spaces, with  $w.e.s$  measured at each level of the system. Furthermore, Elmendorf's result is rather robust: suitable analogue results can be shown to hold for, among others, the categories of (topological) categories and operads. However, it has been known for some time that in the  $G$ -operad case such a result does not capture the "correct" notion of weak equivalence, a fact made particularly clear in recent work of Blumberg and Hill discussing a whole lattice of "commutative operads with only some norms" that are not distinguished at all by the notion of  $w.e.$  suggested above. In this talk I will talk about one piece of a current joint project with Peter Bonventre which aims at providing a more diagrammatic understanding of Blumberg and Hill's work using a notion of  $G$ -trees, which are a somewhat subtle generalization of the trees of Cisinski-Moerdijk-Weiss. More specifically, I will describe a new algebraic structure, which we dub a "genuine equivariant operad", which naturally arises from the study of  $G$ -trees and which we