

## Algebraic Geometry Seminar

### *Normality of Secant Varieties*

Brooke Ullery (University of Michigan)

**Abstract:** If  $X$  is a smooth variety embedded in projective space, we can form a new variety by looking at the closure of the union of all the lines through 2 points on  $X$ . This is called the secant variety to  $X$ . Similarly, the Hilbert scheme of 2 points on  $X$  parametrizes all length 2 zero-dimensional subschemes. I will talk about how these two constructions are related. More specifically, I will show how we can use certain tautological vector bundles on the Hilbert scheme to help us understand the geometry of the secant variety, leading to a proof that for sufficiently positive embeddings of  $X$ , the secant variety is a normal variety.

Wednesday, October 29 at 4:00 PM in SEO 427