

1102-14-211      **Brooke Ullery\*** ([brookeullery@gmail.com](mailto:brookeullery@gmail.com)), Department of Mathematics, 530 Church Street,  
Ann Arbor, MI 48109. *Normality of Secant Varieties.*

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 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. (Received July 29, 2014)