

# ***ALGEBRAIC GEOMETRY AND COMMUTATIVE ALGEBRA SEMINAR***

**Speaker: Matthew Weaver**  
**Purdue University**



**Date:** Tuesday, September 28, 2021

**Time:** 2:30 PM

**Location:** 125 Hayes-Healy Hall

**Zoom URL:**

## ***Lecture Title:***

### **Rees Algebras of Codimension Three Gorenstein Ideals of Hypersurface Rings and their Defining Equations**

#### ***Abstract***

One of the most natural ways to study the Rees algebra of ideal is through its defining ideal and its generators, the defining equations. Unfortunately determining such a minimal generating set is difficult in general and results are only known for Rees algebras of specific classes of ideals. In particular, the Rees algebra of a perfect Gorenstein ideal of codimension three has been studied extensively in recent years, but only when such an ideal belongs to a polynomial ring. In this talk we extend some of these results to the situation of the Rees algebra of such an ideal of a hypersurface ring and explore the defining equations. By introducing the modified Jacobian dual and a recursive algorithm of gcd-iterations we produce a minimal generating set of the defining ideal and determine the Cohen-Macaulayness of the Rees algebra.