

ALGEBRAIC GEOMETRY AND COMMUTATIVE ALGEBRA SEMINAR

Speaker: Matthew Weaver
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Date: Thursday, February 8, 2024

Time: 3:30 PM

Location: 258 Hurley Bldg

Zoom URL: NA

Lecture Title:

Complete intersections and duality, with applications to Rees rings and tangent algebras

Abstract

The Rees algebra plays a central role in both algebraic geometry and commutative algebra, as it allows one to encode the data on the powers of an ideal, along with their syzygies. In this talk however, we consider the more general notion of Rees algebras of modules, which tend to be much more enigmatic. Typically one attempts to approximate these rings by a more understood algebra, namely the symmetric algebra and hopes to measure how much these two rings differ. In this talk, we associate a module measuring this difference and we show it is dual to the symmetric algebra when this is a bigraded complete intersection ring. We then discuss applications to determining the equations defining Rees rings of modules over complete intersection rings and, in particular, modules of K^{ahler} differentials and their associated tangent algebras.