



UNIVERSITY OF
NOTRE DAME

Algebraic Geometry and Commutative Algebra Seminar

Department of Mathematics

Guest Speaker: Fuxiang Yang

University of Notre Dame

Lecture Title:

Recent progress on the Eisenbud-Huneke-Ulrich conjecture



Date: Thursday, September 3, 2026

Time: 3:30 PM

Location: 258 Hurley Hall

Abstract:

Over a polynomial ring, an ideal I is said to be linearly presented if its first syzygy module is generated by linear relations. More generally, the resolution of I is linear for p steps if this linearity continues through the first p steps. In this talk, we explore some fundamental properties of ideals with partially linear minimal free resolution, such as asymptotic behavior of powers, Castelnuovo-Mumford regularity, and lower bounds on the number of minimal generators. In particular, we prove the Eisenbud-Ulrich conjecture on powers of linearly presented ideals and establish a linear effective bound toward the more general Eisenbud-Huneke-Ulrich conjecture.