

ALGEBRAIC GEOMETRY AND COMMUTATIVE ALGEBRA SEMINAR

Speaker: Jenny Kenkel
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Date: Tuesday, November 1, 2022

Time: 2:30 PM

Location: 258 Hurley Hall

Zoom URL: NA

Lecture Title:

**Lengths of Local Cohomology Using Some Surprising Hilbert
Kunz Functions**

Abstract

We investigate the lengths of certain local cohomology modules over polynomial rings. By fixing the degree component, and using the fact that the length of an Artinian ring is the same as that of its injective hull, we transform this into a question about rings of the form $k[x_1, \dots, x_n]/(x_1^{k_1}, \dots, x_n^{k_n})$ and the annihilator of $x_1 + \dots + x_n$ therein. We in particular use refinements of functions introduced by Han and Monsky. This was motivated by questions about behavior of the length of local cohomology with support in the maximal ideal of thickenings, that is, R/I^t as t grows.