



UNIVERSITY OF CALIFORNIA RIVERSIDE

DEPARTMENT OF MATHEMATICS

Colloquium

Dr. Jason McCullough
Rider University

“Graded Free Resolutions of Ideals: A UCR Story”

Abstract:

Let S be a polynomial ring over a field K . Among the many invariants one can attach to a homogeneous ideal, or its associated projective variety/scheme, is its graded free resolution, from which much geometric information can be derived.

Hilbert's famous Syzygy Theorem gives simple, yet often unhelpful, upper bound on the length of this resolution. An open question by Stillman asks for a more effective upper bound in terms of just the degrees of the minimal homogeneous generators.

I will discuss the current status of this problem along with the contributions of three UCR postdocs, past and present: myself, Bahman Engheta and Paolo Mantero.

I also hope to touch on the ways in which I think mathematics research is changing with the rise of computational tools.

Wednesday, May 14th, 2014

Surge 284

Tea Time: 3:40 p.m. / Talk: 4:10 – 5:00 p.m.