



Department of Mathematics, Statistics and Computer Science
SPECIAL COLLOQUIUM ANNOUNCEMENT

Piecewise Polynomials and Commutative Algebra

Michael DiPasquale
Department of Mathematics
Oklahoma State University

1:00 p.m., Monday, February 5, 2018

Abstract

Piecewise polynomial functions, also called splines, are widely used in many areas of applied mathematics. Given a partition of a domain in some real n -dimensional space, an important question in numerical analysis is to determine the dimension of the vector space formed by piecewise polynomials of some bounded degree. The dimension of this vector space can change in surprising ways depending on the geometry and combinatorics of the domain. We will describe how this can be translated into an algebraic problem, allowing use of techniques from commutative algebra. The flexibility of algebraic methods allows a uniform approach to computing these dimension formulas; we will survey some of the results that have been obtained in this way, as well as difficulties that persist in spite of the efforts of many researchers. We will focus primarily on the planar case and give many examples. No knowledge of the objects involved will be assumed.

1313 W. Wisconsin Avenue, Cudahy Hall, Room 401, Milwaukee, WI 53201-1881

For further information <http://www.mscs.mu.edu/mscs/resources/colloquium.html> or
contact Dr. Daniel Rowe at #414-288-5228, daniel.rowe@marquette.edu

POST-COLLOQUIUM REFRESHMENTS SERVED IN ROOM 342 AFTER 2:00 P.M.