

THE DEPARTMENT OF MATHEMATICAL SCIENCES

Indiana University - Purdue University Fort Wayne

is pleased to present

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Normal Domains Arising from Graph Theory

Abstract

Determining whether an arbitrary subring R of $k[x_1^{\pm 1}, \dots, x_n^{\pm 1}]$ is a normal domain is, in general, a nontrivial problem, even in the special case of a monomial generated domain. In this talk, we consider the case where R is a monomial generated domain where the generators have the form $x_i^{\pm 1}x_j^{\pm 1}$. For the ring R , we consider the combinatorial structure that assigns an edge in a mixed directed signed graph to each monomial of the ring. In this talk we use this relationship to provide a combinatorial characterization of the normality of R , and, when R is not normal, we use the combinatorial characterization to compute the normalization of R . Time permitting, we will discuss generalizations of this to a special class of hypergraphs and characterizations of Serre's R_1 condition. All important concepts will be defined.

Noon – 1:00, Wednesday, March 29, 2017. Location: Kettler 216

<http://ipfw.edu/departments/coas/depts/math/news/seminars.html>