

ALGEBRA AND GEOMETRY SEMINAR

Speaker: Gregory G. Smith (Queen's University)

Title: Sums of squares on surfaces

Abstract: How do we effectively verify that a polynomial function is nonnegative? We will certify nonnegativity by exhibiting a nonnegative multiplier such that the product is a sum of squares. We will survey a few known results before focusing on some new bounds. Unexpectedly, our novel techniques are particularly well-suited for producing bounds on the degrees of nonnegative functions on ruled surfaces. This talk is based on joint work with Grigoriy Blekherman, Rainer Sinn, and Mauricio Velasco.