

# Queen's Algebraic Geometry — Seminar —

## ON THE LIMIT OF THE $F$ -SIGNATURE FUNCTION IN CHARACTERISTIC ZERO

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### Abstract

The  $F$ -signature of a local ring in positive characteristic gives a measure of singularities by analyzing the asymptotic behavior of the number of splittings ( $F$ -splittings) of large iterates of the Frobenius endomorphism. One can also incorporate ideal pairs by restricting the set of "allowable" splittings, and varying the coefficient of the ideal gives rise to the  $F$ -signature function of the pair. While for each fixed characteristic  $p > 0$ , these functions tend to be extremely complicated, in the few examples that have been computed they tend to limit to a piecewise polynomial function as  $p$  tends to infinity. In this talk, I will discuss what is known about these functions and their limits, and present a number of new computations for diagonal hypersurfaces. The new computations (joint with Shideler) build on the techniques of Han and Monsky used to compute the Hilbert-Kunz multiplicities of diagonal hypersurfaces.

Monday 16 March 2015  
16:30–17:30  
319 Jeffery Hall