

1064-13-336

Kevin Tucker* (kevtuck@math.utah.edu), Department of Mathematics, University of Utah, 155 S 1400 E Room 233, Salt Lake City, UT 84112-0090. *The F-Signature.*

Let R be a reduced F -finite local ring with prime characteristic $p > 0$ and perfect residue field. Let R^{1/p^e} be the ring of p^e -th roots of elements of R for $e > 0$. The F -signature of R is $s(R) := \lim_{e \rightarrow \infty} \frac{\# \text{ of } R\text{-free direct summands of } R^{1/p^e}}{p^{ed}}$, assuming this limit exists. This invariant was first formally defined by C. Huneke and G. Leuschke, and its existence up to this point has only been shown in various special cases. We give a general existence proof of this limit, based on certain uniform Hilbert-Kunz estimates. (Received September 14, 2010)