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Manuel Blickle and **Karl Schwede*** (kschwede@umich.edu), Department of Mathematics, Pennsylvania State University, University Park, PA 16802, and **Kevin Tucker**. *F-signature of pairs*.

The F -signature is a fundamental measure of the singularities of a local ring R of characteristic $p > 0$. Explicitly, it measures the number of copies of R that a direct sum decomposition of R^{1/p^e} has, as e increases. It is closely related to the notion of F -regularity.

In this talk, we discuss the generalization of the F -signature to a pair (R, Δ) where Δ a some \mathbb{Q} -divisor. This generalization is natural since concepts like F -regularity have long since been generalized to this context. Pairs are useful because, given a morphism of rings $R \rightarrow S$, they allow one to study the singularities of R by studying the singularities of a certain pair on S (which may be easier). This technique also allows us to answer an open question of Aberbach and Enescu related to the F -signature and the splitting prime. (Received September 20, 2010)