



F-signature of pairs and the asymptotic behavior of Frobenius splittings

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We generalize f -signature to pairs (R, D) where D is a Cartier subalgebra on R as defined by the first two authors. In particular, we show the existence and positivity of the f -signature for any strongly f -regular pair. In one application, we answer an open question of I. Aberbach and F. Enescu by showing that the f -splitting ratio of an arbitrary f -pure local ring is strictly positive. Furthermore, we derive effective methods for computing the f -signature and the f -splitting ratio in the spirit of the work of R. Fedder.

Comments: 26 pages, comments welcome

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