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Xavier Gomez-Mont* (gmont@cimat.mx), AP 402, 36000 Guanajuato, Mexico. *Bilinear Forms in Mixed Hodge Structure of a Real Isolated Hypersurface Singularity.*

The cohomology groups of an Isolated Hypersurface Singularity has a natural filtration coming from its mixed Hodge structure (Steenbrink, Scherk, Varchenko).

If the defining equation is real, then one may define a nondegenerate real valued bilinear form on the real Milnor Algebra (Eisenbud-Levine), whose signature contains the information of the Euler characteristic of the positive and negative real Milnor fibre (Arnold).

Using the filtration from the mixed Hodge structure one can introduce real valued bilinear forms on the graded module associated to the filtration, which receive a simple expression in terms of the Eisenbud-Levine form on the real Milnor Algebra using multiplication by powers of the defining equation (as a symmetric operator of the bilinear form): $\langle f^{j*}, * \rangle$.

We will explain the connection of these bilinear forms with the GSV-index (or topological index a la Poincaré-Hopf) of a vector fields tangent to the Milnor fibre, with Teissier's polar curves and to invariants coming from multiplier ideals. (Received April 12, 2010)