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David B Massey* (d.massey@neu.edu). *Zero vanishing cycles versus normal slicing.*

Suppose that K is a bounded, constructible complex of sheaves on a complex analytic space X , and f is a complex analytic function on X . Then, the condition that K has no vanishing cycles along f serves, in many ways, as a purely cohomological version of saying that the zero locus of f is normally nonsingular to a Whitney stratification with respect to which K is constructible.

However, a fundamental problem with this philosophy is that intersection cohomology (with constant or twisted coefficients) need not yield intersection cohomology (even after a shift) when one takes such a "cohomological normally nonsingular" slice.

We discuss how to "fix" this problem, and the interesting, deep, questions which surround the issue. (Received March 22, 2010)