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Hochster’s theta pairing and numerical equivalence.

This is joint work with K. Kurano. Let $R$ be a local hypersurface with an isolated singularity admitting a desingularization. We show that Hochster’s theta pairing vanishes on elements in the Grothendieck group that are numerically trivial. As a consequence we show that the counter-example of Dutta-Hochster-McLaughlin to generalized Serre’s vanishing exists when $R$ is three dimensional and not a UFD. (Received September 08, 2012)