

**Meeting:** 998, Houston, Texas, SS 2A, Special Session on Representations of Algebras

998-18-332            **Ragnar-Olaf Buchweitz\*** (ragnar@math.utoronto.ca), Dept. of Mathematics, University of Toronto, 100 St. George Street, Toronto, Ontario M5S 3G3, Canada. *Grothendieck Residues, Hochschild Cohomology, and the Centre of the Derived Category*. Preliminary report.

For any algebra there is a canonical ring homomorphism from its Hochschild cohomology ring to the graded centre of its derived category. The definition of that homomorphism is conceptual but does not say anything about its properties such as injectivity or surjectivity. Here we show that the Grothendieck residues of finite dimensional representations of the algebra, as interpreted by Joe Lipman, are a useful tool to bound the kernel of that homomorphism. In fact, the bounds so obtained are sharp in the few examples we can effectively calculate. In particular, the homomorphism turns out to be injective for affine smooth algebras over a field. This also sheds further light onto the possible shape of support varieties for artinian algebras as proposed by Snashall, Solberg et al. (Received March 01, 2004)