Meeting: 1006, Lubbock, Texas, SS 4A, Special Session on Homological Algebra and Its Applications

1006-13-219 **Anne-Marie Simon*** (amsimon@ulb.ac.be), Université libre de Bruxelles, Campus de la plaine,C.P. 211, Boulevard du Triomphe, B-1050 Bruxelles, Belgium. *Auslander's and Bass invariants related to some homological conjectures.*

Let M be a module over a d-dimensional noetherian local ring (A, m, k). The natural map from $Ext^i_A(k, M)$ to the local cohomology module $H^i_m(M)$ is of great significance. We retain the dimension of its image, viewed as a k-vector space, and call it the i^{th}-reduced Bass number $\nu^i_A(M)$ of M. When is this non null? How can it be interpreted? Where is it useful? Concerning the non-vanishing problem, we have Hochster's Canonical Element Conjecture (CEC), which states that the top reduced Bass number $\nu^d_A(K_A) \neq 0$ if K_A is the canonical module of the ring A. CEC is also equivalent to the following: for any non null annihilator ideal b of a d-dimensional Gorenstein local ring R, $\nu^d_R(b) \neq 0$, equivalently $\delta_R(R/b) = 0$, where $\delta_R(\cdot)$ is the Auslander's invariant.We will give some interpretations. All this is joint work with Jan R. Strooker (Received February 15, 2005)