

Seminari de Geometria Algebraica 2007/2008 (UB-UPC)

Divendres 30 de novembre a les 15h. a l'aula B5

<http://atlas.mat.ub.es/sga>

Smooth algebras, Gorenstein algebras, and Hochschild cohomology

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In the talk I will present results relating the properties of the fibers of a flat, essentially of finite type homomorphism of commutative rings $K \rightarrow S$, and the Hochschild homology of the K -algebra S . More precisely, I will show that S is smooth over K if and only if the graded module $\text{Ext}_{S \otimes_K S}^*(S, S)$ vanishes in a prescribed range, and that S is Gorenstein over K if and only if the graded S -module $\text{Ext}_{S \otimes_K S}^*(S, S \otimes_K S)$ is invertible. Partial results and open problems about characterizing the Gorenstein property in terms of partial vanishing of this graded module will be discussed.

The talk is based on joint work with Srikanth Iyengar.
