Séminaire d'algèbre, topologie et géométrie
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Salle I

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The Hochschild-Witt complex

The "de Rham-Witt complex" of Deligne and Illusie is a functorial complex of sheaves $\mathrm{W}\Omega^*(X)$ on a smooth algebraic variety X over a finite field, computing the crystalline cohomology of X. I am going to present a non-commutative generalization of this : even for a non-commutative ring A, one can define a functorial "Hochschild-Witt complex" with homology $\mathrm{WHH}^*(A)$; if A is commutative, then $\mathrm{WHH}^i(A) = \mathrm{W}\Omega^i(X)$, $X = \mathrm{Spec}\, A$(this is analogous to the isomorphism $\mathrm{HH}^i(A) = \Omega^i(X)$ discovered by Hochschild, Kostant and Rosenberg). Moreover, the construction of the Hochschild-Witt complex is actually simpler than the Deligne-Illusie construction, and it allows to clarify the structure of the de Rham-Witt complex.