

In this talk I will survey recent advances in derived geometry that allow to obtain a complex and rigid analytic version of the Hochschild-Kostant-Rosenberg theorem.

Classically, this theorem states that Hochschild homology (the algebraic counterpart of the self-intersection of the diagonal) is isomorphic to the de Rham algebra.

Using techniques from derived geometry, Toën and Vezzosi lifted this isomorphism to an equivalence at the chain level, and showed it to be multiplicative and to be compatible with the natural circle action on the Hochschild side and the de Rham differential on the differential side.

In this talk I will explain the motivations that lead us to seek for an analytic HKR theorem.

After, I'll give a new simplified proof of the HKR theorem in the algebraic setting, and I'll explain why this new proof can be generalized to the complex and rigid analytic setting.

This is joint work with J. Antonio and F. Petit.