On de Rham–Witt derived invariants

Benjamin Antieau

June 12, 2019

Abstract

I will explain positive results on HKR in characteristic p proved with Gabriele Vezzosi and negative results on HKR obtained with Bhargav Bhatt and Akhil Mathew. Then, I will report on joint work with Daniel Bragg which shows how to use these results as well as new derived invariants arising from topological Hochschild homology to prove that if X and Y are smooth projective varieties of dimension at most 3 over a field of characteristic $p > 0$ and if $\mathcal{D}^b(X) \simeq \mathcal{D}^b(Y)$, then $\chi(\Omega^i_X) = \chi(\Omega^i_Y)$ for all i. Moreover, if X and Y are surfaces, we obtain equality of Hodge numbers $h^{i,j}(X) = h^{i,j}(Y)$ for all i, j.