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„Multiplicative Adams operations on algebraic K-theory spectra of schemes."

Abstract:

In this talk I will explain how one can construct $\mathbb{E}_\infty$-Adams operations on algebraic K-theory spectra. More precisely, for any natural number $k \geq 1$ and a scheme $X \in \mathbf{Sm}_S$ smooth over a noetherian base S of finite Krull dimension we will see how one can construct a natural $\mathbb{E}_\infty$-self map

$$\psi_X^k : \mathrm{K}(X)[\tfrac{1}{k}] \to \mathrm{K}(X)[\tfrac{1}{k}]$$

on the k-inverted K-theory spectrum of X such that the induced map on π_0 coincides with the classical Adams operations on $\mathrm{K}_0(X)$.

If time permits, I will explain how one can lift the ψ_X^k's to natural $\mathbb{E}_\infty$-self maps on the differential algebraic K-theory spectrum

$$\widehat{\psi}_X^k : \widehat{\mathrm{K}}(X)[\tfrac{1}{k}] \to \widehat{\mathrm{K}}(X)[\tfrac{1}{k}]$$

in the special case $S = \mathrm{Spec}(\mathbb{C})$.