

Manin conjecture for algebraic stacks

We study the conjecture of Manin-Batyrev-Peyre in the context of algebraic stacks. Two examples are of particular interest: the compactification of the moduli stack of elliptic curves $\overline{\mathcal{M}}_{1,1}$ and the classifying stack BG for G finite group, which classifies G -torsors. The stack $\overline{\mathcal{M}}_{1,1}$ is isomorphic to the weighted projective stack $\mathcal{P}(4,6)$ which is the quotient stack for the weighted action of \mathbb{G}_m on $\mathbb{A}^2 - \{0\}$ with weights 4, 6. For weighted projective stacks, we define heights that we can use for counting its rational points, examples are given by the naive height and the Faltings' height of an elliptic curve.

We try to motivate why the second example may help us obtain a geometrical reinterpretation of constants appearing in Malle conjecture, which predicts the number of Galois extensions with fixed Galois group G .