

See an account by Deligne, a year ago in the Bourbaki seminar

Morita Equivalence

$${}_A \text{Mod} \cong {}_B \text{Mod}$$

Given $T: {}_A \text{Mod} \rightarrow {}_B \text{Mod}$ a functor
is an equiv. of categories

$$T({}_A A) = {}_B P_A$$

- ${}_B P_A$ is
1. Projective as a B -module
 2. Generator as a B -module
 3. $A \cong \text{End}_B({}_B P_A)$
 4. $T({}_A M) = {}_B P_A \otimes_A M$ for any M

Morita: Given P w/ properties 1-3,
4 defines an equivalence of categories.

Category of groups "pro-unipotent"

$$G = \varprojlim G_n \quad G_n \subset \begin{pmatrix} 1 & * \\ 0 & 1 \end{pmatrix}$$

There are Lie algebras, & $\exp: \mathfrak{g} \xrightarrow{\sim} G$

in $\text{char} = 0$

\uparrow
isomorphism

also $a \mapsto \exp(a)$ an inv.

also $\mathfrak{g} = \varprojlim \mathfrak{g}_n$ an inverse
limit of Lie-
algebras.

In characteristic p
"The group curve"

$$C(G) \cong G(K[[t]])$$

For l a prime $(\bigvee_l \gamma)(t) = \gamma(t^l)$

$$(\bigwedge_l \gamma)(t) = \sum_{i=0}^{l-1} \gamma(\zeta_l^i t)$$

Where ζ_l is a "root of unity" See video.

See video.

See video.