

Johanna

1) Schlessinger: Functors of Artin rings

2) There is a transfo of factors

$$\begin{array}{ccc} \mathbb{R} & \xrightarrow{\quad} & \text{Ell}/\mathbb{R} \\ & \searrow & \downarrow \\ & & \mathcal{G}/\mathbb{R} \end{array}$$

3) Serre Tate thm

$$\text{Def}(A/\mathbb{C}) \cong \text{Def}(\hat{A}/\mathbb{C})$$

Artin rings

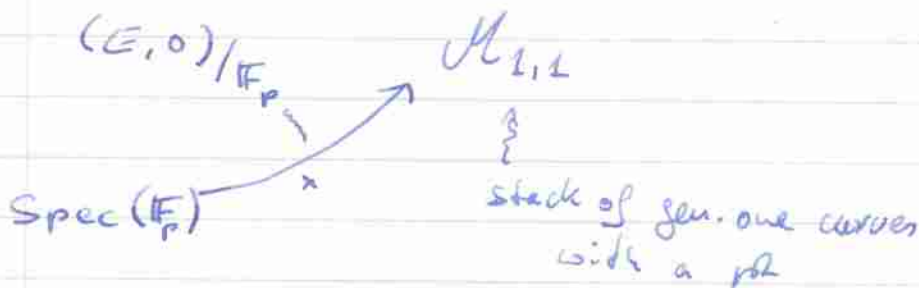
e.g. $\mathbb{C}\{x, y\}$

& not $\mathbb{C}[x, y]$

explained in some appendix by Drinfeld

Paper by Nick Katz

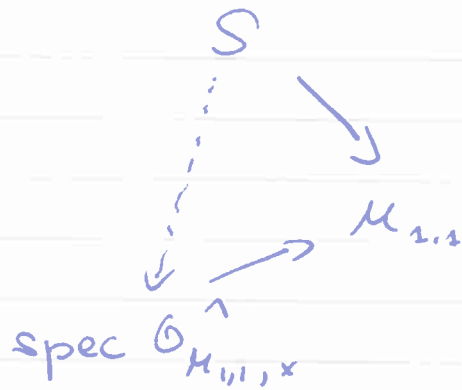
"Serre Tate local moduli/parameters"



what would be a neighborhood of this pt (formal étale / Zariski), probably speaking about formal neighborhood

if $\mathcal{M}_{1,1}$ was space, think about $\hat{\mathcal{O}}_{\mathcal{M}_{1,1}, x} =$ a hull for the deformation problem posed by the ell. curve $(E, 0)$

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if there is some thickening, factors

Mike Artin

Katz-Mazur then

introduction

when they study the local str. of the moduli space locally at supersingular pt def th. comes in.

Deligne Mumford \rightarrow stacks.