Dropbox | Problems $\mathbb{P}^2 \longleftrightarrow k[x,y,z]$

M2
Singular
SAGE
Magma Calculator

k field ← rationals $k = \mathbb{Q}$
finite field $k = \mathbb{F}_7$

projective plane
or poly ring x, y, z

Kodaira Spencer Map

$\left(\begin{array}{c}\text{family of algebras} \\ \text{depending } a, b, c\end{array}\right) = \mathbb{A}^3_{a,b,c} = k^3 \ni \begin{pmatrix} a \\ b \\ c \end{pmatrix}$

pick $pt = (5, 7, 11) \in \mathbb{A}^3$

3 dim tangent space At pt $(5,7,11)$

$T_{(5,7,11)}(\mathbb{A}^3) \xrightarrow{KS} HH^2(A_{abc})$

moving pt a little — moving algebra a little

$(HH^2_A) \longleftrightarrow$ (Deformations of A infinitesimal)

V variety / k projective

Defs(V) f.d vector space

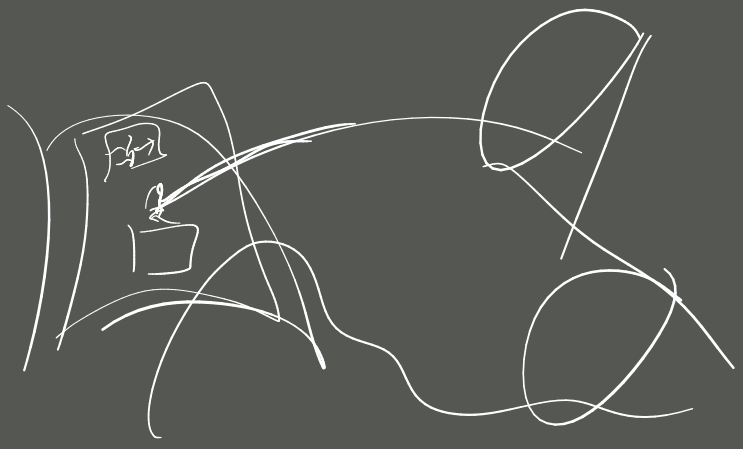
$\frac{k[x,y]}{(xy)}$ $>\!\!<$

$\frac{k[\varepsilon][x,y]}{(\varepsilon^2)}$ $\{xy = \varepsilon\}$

$xy = 1$

$\times \rightsquigarrow)($

HH^2



Space
of Algs
4 vars
6 quad rels