a

$$\mathcal{T}(t) = \frac{t}{2} \pm \dots$$

$L_+ - L_-$: trivial in $\mathrm{Fuk}(X)$

$\Big\updownarrow$ mirror

trivial in $D^b(\mathrm{Coh}\, Y)$

$\begin{pmatrix} \text{Branes on} \\ \text{Fermat quintic} \\ X \end{pmatrix} \xleftrightarrow{\cong} \begin{pmatrix} \text{Branes on} \\ \text{Fermat mirror} \\ \text{quintic } Y \end{pmatrix}$

$\Big\updownarrow$

matrix factorizations

$$\left(\sum x_i^5 - 5\psi \prod x_i\right) I_n = (\text{poly ent.})(\text{poly ent.})$$

mirror of $L_+ - L_- = \mathcal{L}$ elt of $D^b(\mathrm{Coh}\, Y)$

(8 term cplx, rather messy)

$ch(\mathcal{L}) = 0$ in K-theory

$ch^{alg}(\mathcal{L}) \neq 0$ represen. by $C_+ - C_-$

$C_\pm$ hol. curves in Y

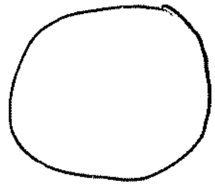
b

$C_+ - C_- = \partial\Gamma \qquad \Gamma = 3$ chain

$J(z) = \int_\Gamma \Omega_z$ will descr. as elt of family of intermed. Jacobians over $\{z\}$

$\partial_\alpha J(z) \quad \int_\Gamma Y_z$

$$\mathcal{H}^3 \supseteq \mathcal{H}^{3,0+2,1+1,2} \supseteq \mathcal{H}^{3,0+2,1} \supseteq \mathcal{H}^{3,0}$$



$(H^{3,0}+H^{2,1})^* / H_3(\cdot,\mathbb{Z})$

$\bar{C}_+, \bar{C}_-$: $(x_1^5 + x_2^5 + \dots + x_5^5 - 5\psi x_1 \cdots x_5 = 0)/\mathbb{Z}_5^3$

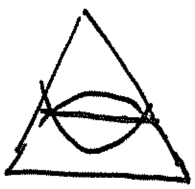
mirror of $L_+ - L_-$

$x_1 + x_2 = x_3 + x_4 = 0$ (a $\mathbb{CP}^2 \subseteq \mathbb{CP}^4$)

$$0 = x_5^5 - 5\psi x_1^2 x_3^2 x_5$$

$$= x_5 \, (x_4^2 - \sqrt{5\psi}\, x_1 x_3) \} \bar{C}_+$$

$$(x_4^2 + \sqrt{5\psi}\, x_1 x_3) \} \bar{C}_-$$

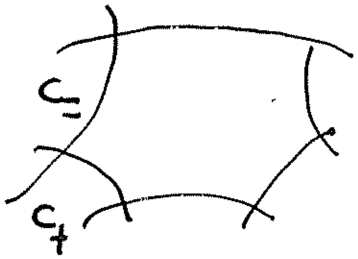


$\bar{Y}$

$$\bar{C}_+ - \bar{C}_- = \partial \bar{\Gamma}_3$$

lift (resolution

ⓒ



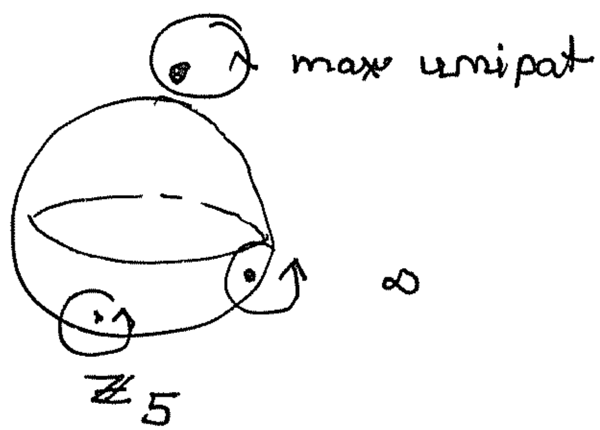
$$C_+ - C_- = \partial \Gamma_3$$

If $\Gamma_3 \subseteq \mathbb{CP}^2 \Rightarrow \int_{\Gamma_3} \Omega = 0$.

but you can't force $\Gamma_3 \subseteq \mathbb{CP}^2$; only away from intersection pts.

$$\mathcal{D} \int_{\Gamma} \Omega_{\cancel{\psi}} = \frac{15}{16\pi^2} \sqrt{z}$$

monodromy



$$\mathcal{D}' \int_{\Gamma} \Omega_z = 0$$

$$\mathcal{D} \Phi = 0 \Rightarrow \mathcal{D}' \phi = 0$$

$$J(t) =$$