

V $h^{1,1} = 1$ generic quintic in \mathbb{P}^4
 V^0 $h^{2,1} = 1$ 1-d. moduli = res of $(x_1^5 + \dots + x_5^5 - t x_1 \dots x_5) \subset \mathbb{P}^4/G$

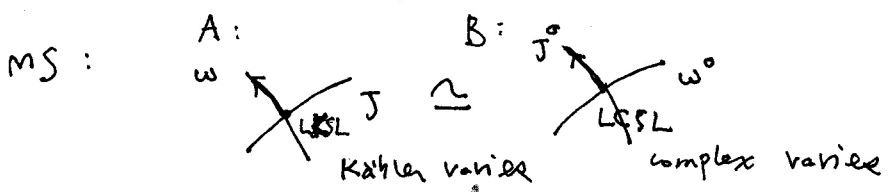
$f(t)$:

$G = \{(a_1, \dots, a_5) \in \mathbb{Z}_5^5, \sum a_i \equiv 0 \pmod{5}\} / \mathbb{Z}_5$ $|G| = 5^3$ ab gp.

V_ψ^0 smi ex opt $\psi = \infty$, $\psi = 5\mu$
 LCSL CONIFOLD
 $\psi_1^5 = \psi_2^5 \Leftrightarrow$ same moduli

inv. coord:

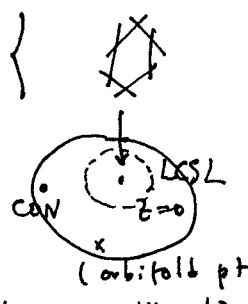
or $z := \psi^{-5}$



Local coord: $\text{mirror map} \rightarrow z ?$

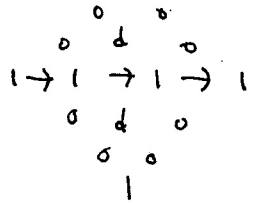
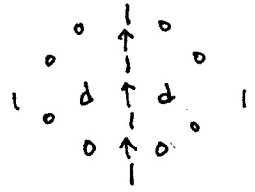
monodromy: $L := H^0 \rightarrow \bigoplus_{p=0}^3 H^{p,p}(V)$

T : q -unipotent
 $N = \log T^r$
 (or $T^r - 1$)



$L^3 \neq 0, L^4 = 0$

acts on $H^3(V^0, \mathbb{C})$: KS map



limiting MHS
 \rightarrow pick $z = 0$

3pt function:

$\langle H_1, H_1, H_1 \rangle = 5 + \sum_{d=1}^{\infty} n_d d^3 \frac{t^d}{1-t^d}$

Yukawa coupling $F_{i,j,k}$, now

$= K_{ttt}$ now

MCF condition "not in N "?

Rank for $g \geq 1$
 Gopakumar-Vafa

$T \delta_0 = \delta_0$
 $T \delta_1 = \delta_1 + \delta_0$

$= G_{222}$

$b = e^{2\pi i t}$

$\rightarrow e^{2\pi i t} \frac{\int_{\gamma_1} \Omega_{24}}{\int_{\gamma_0} \Omega_{24}}$

$\rightarrow \text{eg. } \Omega_{\psi} = \text{res} \frac{\psi \Omega_{\mathbb{P}^4}}{f(\psi)}$

PF e^{t^4} : $\delta^4 - 5\delta^3 z (d + \frac{1}{z}) \dots (d + \frac{4}{z}) = 0$

$Y := z^3 G_{222} = - \int_X \Omega \wedge \delta^3 \Omega$

$\delta = z \frac{d}{dz}$

$\delta Y = - \int \delta \Omega \wedge \delta^3 \Omega - \int \Omega \wedge \delta^4 \Omega$

$= - \delta \int \delta \Omega \wedge \delta^2 \Omega + \int \delta^2 \Omega \wedge \delta^2 \Omega - \int \Omega \wedge \frac{2 \cdot 5 \delta^2 z}{1 - 5 \delta^2 z} \delta^3 \Omega + \dots = 0$

$= - \delta (\delta \int \Omega \wedge \delta^2 \Omega - \int \Omega \wedge \delta^3 \Omega) - \frac{2 \cdot 5 \delta^2 z}{1 - 5 \delta^2 z} Y$

$\Rightarrow Y = \frac{c}{1 - 5 \delta^2 z} \Rightarrow G_{222} = \frac{c}{z^3 (1 - 5 \delta^2 z)}$

H unit vector = $\frac{d}{dt} = 2\pi i g \frac{d}{d\beta} \rightarrow \nu = 2\pi i g \frac{d\beta}{d\beta} \frac{d}{dz} \in H^1(V^0, T_{V^0})$

$\langle H_1, H_1, H_1 \rangle = (2\pi i \frac{g}{z} \frac{d\beta}{d\beta})^3 \delta^3 F = \frac{(2\pi i)^3 c (1 + 770z + \dots)}{(1 + 5^5 \frac{g}{z} + \dots)(1 - 240 \frac{g}{z} + \dots)} \Rightarrow c = \frac{\sqrt{5}}{(2\pi i)^3}$
 $g=1, n_1=2875$