

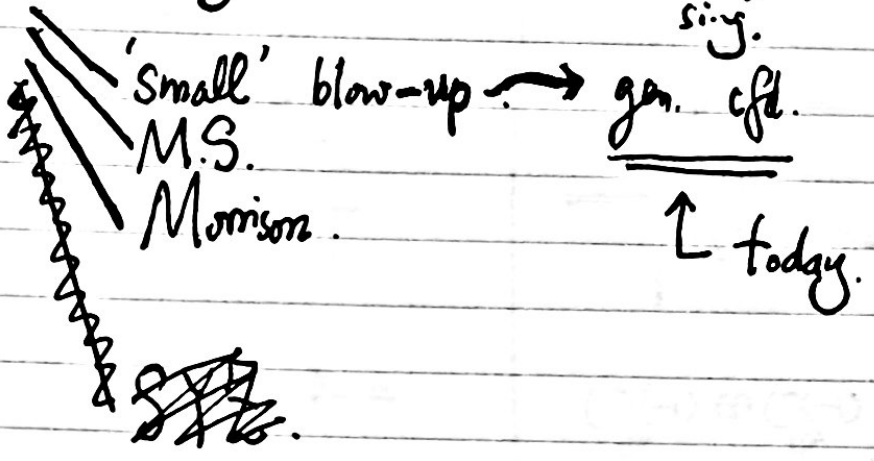
~~Unavoidable to have orb. con. in orb. con. nat. approx.~~
 need sim. transition (have distinction for transition individually).
 May have orb con. in process

loc. picture, eqn.

Motivation.

— orb. trans., Reid's fantasy
 — more gen: blow down & sum of tor. Ge. sing.

Geom. trans. in SYZ



• SYZ: geom. understanding of MS.

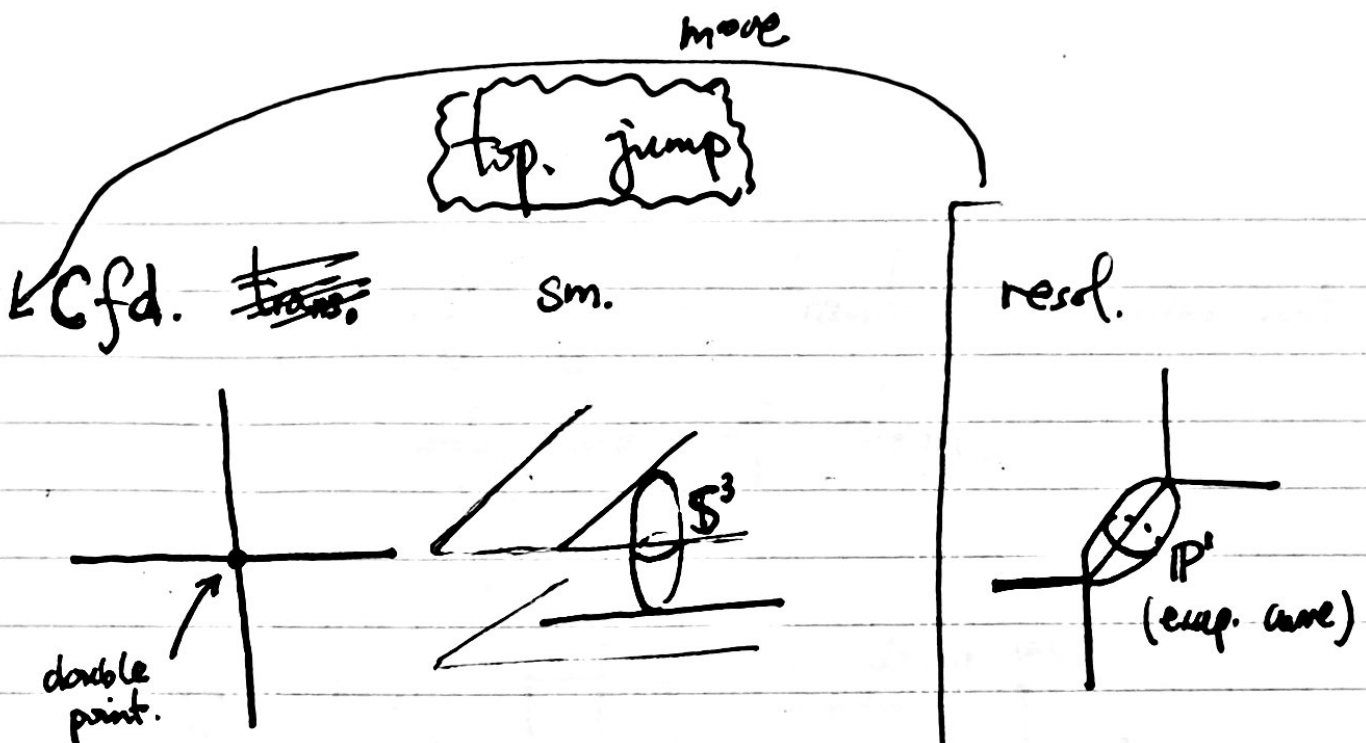
local case

- Lag. fib.
- hol. discs ($\mu=0$)
- wall-crossing.
- Mirror expression.
- Corr. of objects.

Main statement
 gen. conifold
 \xleftrightarrow{MS} orb. conifold.
~~At~~ [K.-L.]

• Global: toric deg. (Gross-Siebert) [CM]

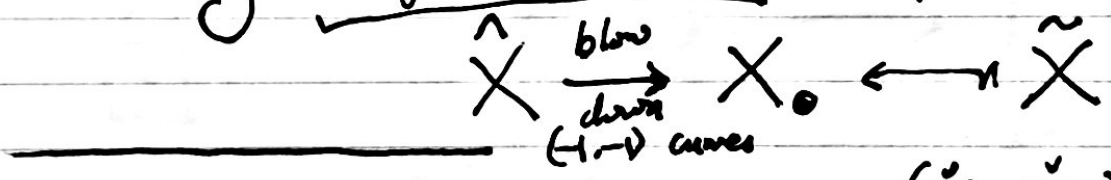
— Shraw's CY. aff. str.
 for aff. str.



$uv = zw$. Friedman $\begin{cases} uv = \frac{1}{2} - a \\ zw = \frac{1}{2} \end{cases}$
 (∃ obstruction for global: -Tian STY) (T^*S^3)
 Why care?

unifold transitions.

Reid's fantasy: All CY are connected w/ each other
 by unifold transitions? (Important to string theory.)



MS: $\underbrace{(X, \omega)}_{\text{new}} \longleftrightarrow \underbrace{(\check{X}, \check{J})}_{\text{old}}$

Morrison: Trans. process is reversed under MS.

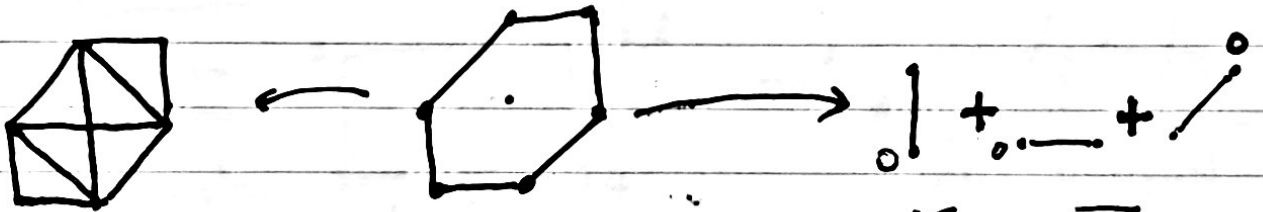
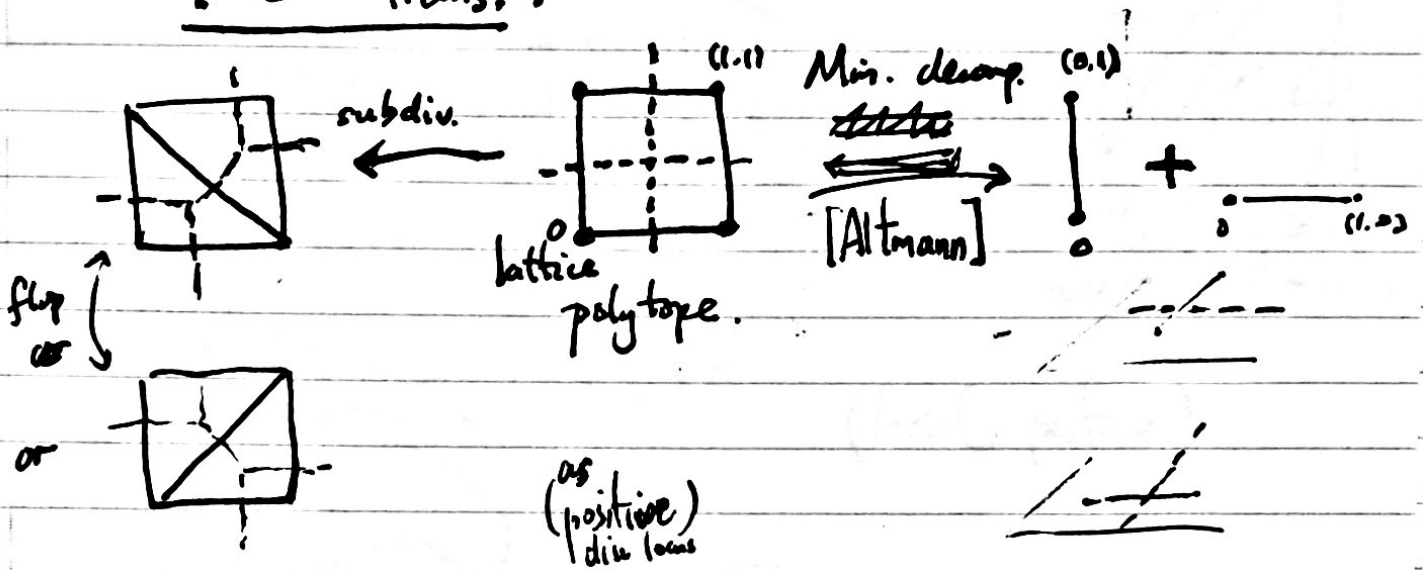
Loc. can be understood via SYZ

Global: [CM]
 [GS]

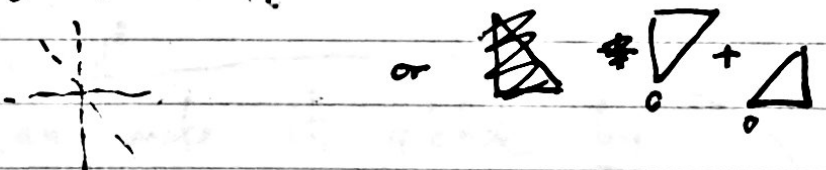
geom. approach to MS.

- Other types of geom. trans. also arises nat. c.t. is only one of them.

tonic trans.:



Can do SIZ & show Morrison

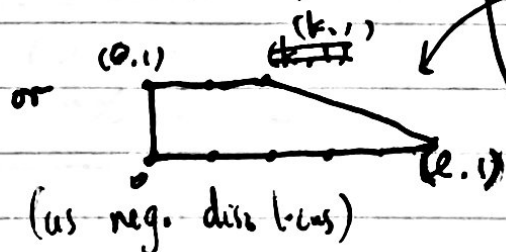
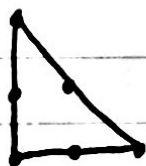


One type particular similar to cfd:

Small blowup: $dim(\text{excep. locus}) = 1$

\Rightarrow no int. latt. pt. \in polytope.

Only two cases:



today. fows

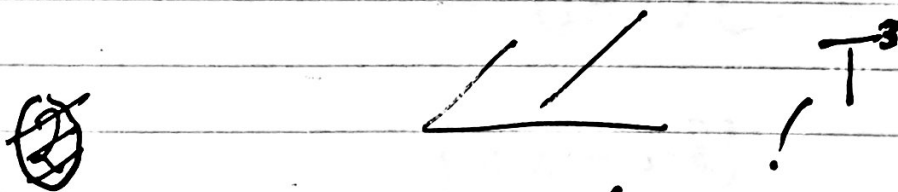
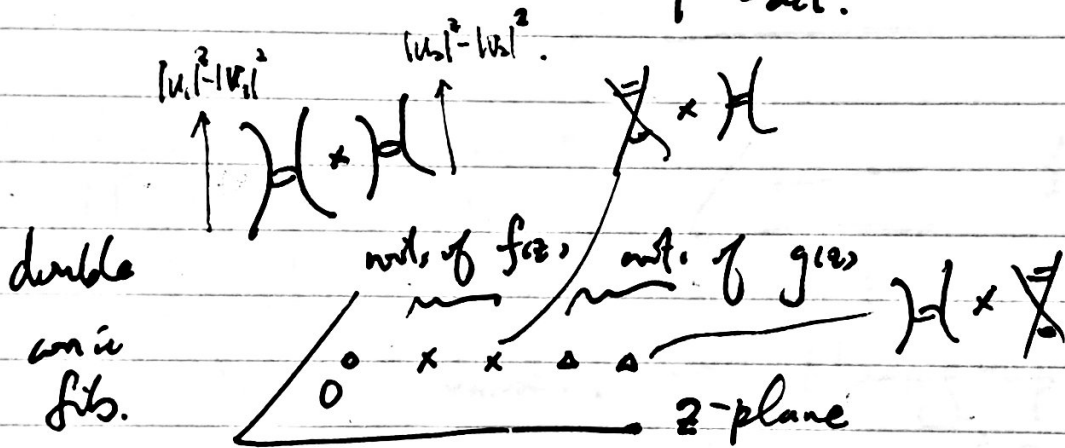
(as neg. disc locus)

SYZ for $\tilde{O}_{k\ell}$ $u_1 = z^k + \dots = f(z)$
 $u_2 = z^\ell + \dots = g(z)$

① Lag. fib.

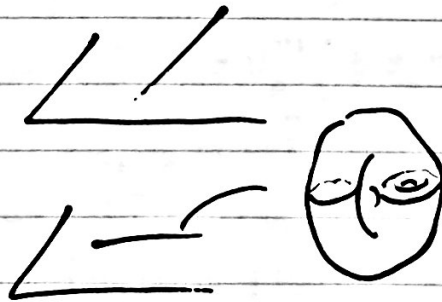
$$\left(|u_1|^2 - |v_1|^2, |u_2|^2 - |v_2|^2, |z| \right)$$

moment map of T^2 -act.

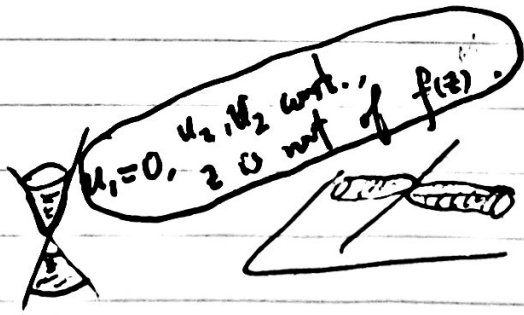


Lag.

fib.

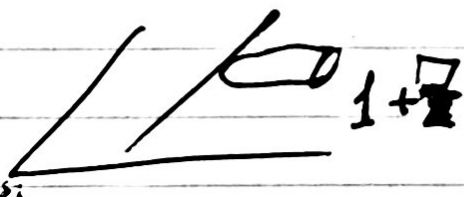


② hol. discs. & roots.



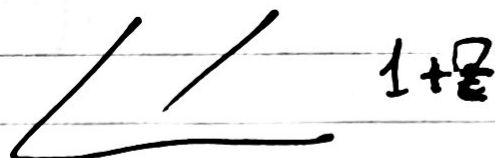
(3) wall-crossing fns.

To detect the effect of μ discs:

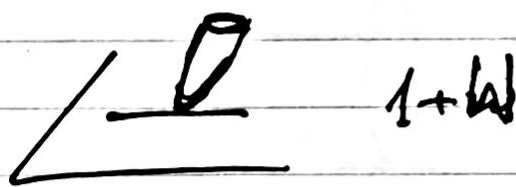


~~Three~~ approaches:

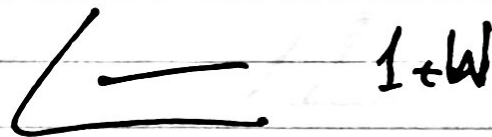
① Consider ($\mu=2$) discs interacting in [Anura, CHL] there



② Fukaya's trick (appear in homology btw tori)



③ Appear in assoc. of Lag. tri.



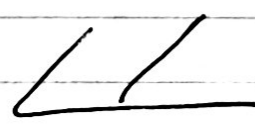
④ LF of immersed Lag.

Result: $\cong K3$ [Lin]

④ SYZ mirror is blowing-up of

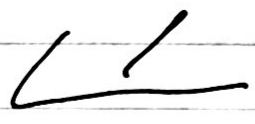
$$\{uv = (1 + \frac{7}{2})^k \text{ ~~or~~ } (1 + \frac{7}{2})^l\}$$

which is \tilde{G}_{2e} .



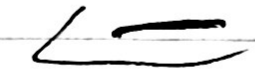
$$\{u_1 v_1 = 1 + \frac{7}{2}\}$$

union $\bigcirc u_1 = v_2^{-1} (\Rightarrow v_1 = (1 + \frac{7}{2}) v_2)$



$$\{u_2 v_2 = 1 + \frac{7}{2}\}$$

union $\bigcirc u_2 = v_3^{-1}$



$$\{u_3 v_3 = 1 + \frac{7}{2}\}$$

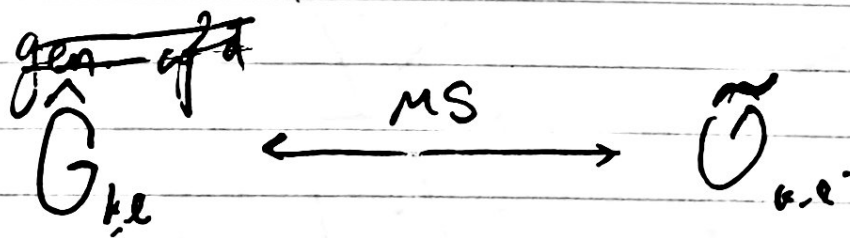
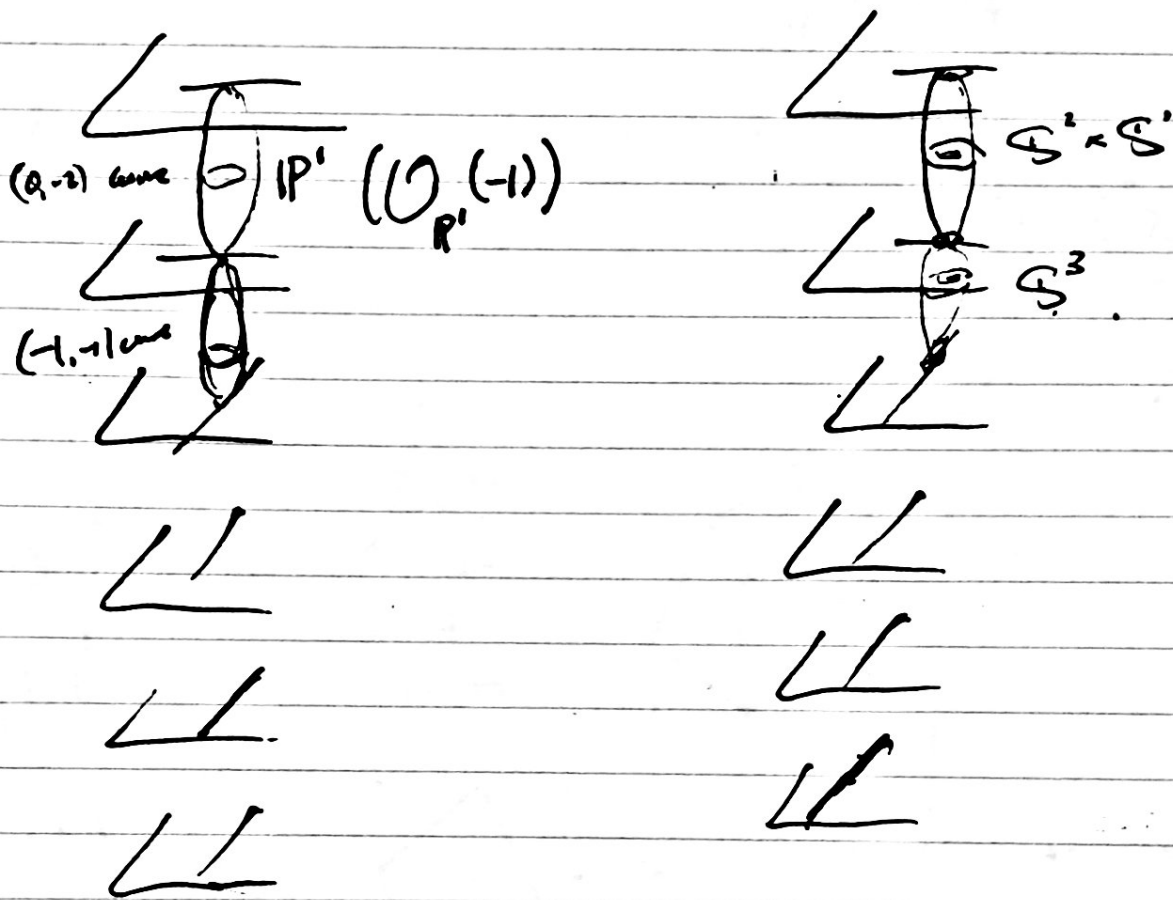
union \bigcirc



⋮

~~Understanding from aff. str.~~

- Corr. of geom. obj.



- HMS. geom.
- use quivers.
- Stab. cond. & flip. [FHLV]
- global transition. by method of [CM].