SISSA conference 17.06.'19.

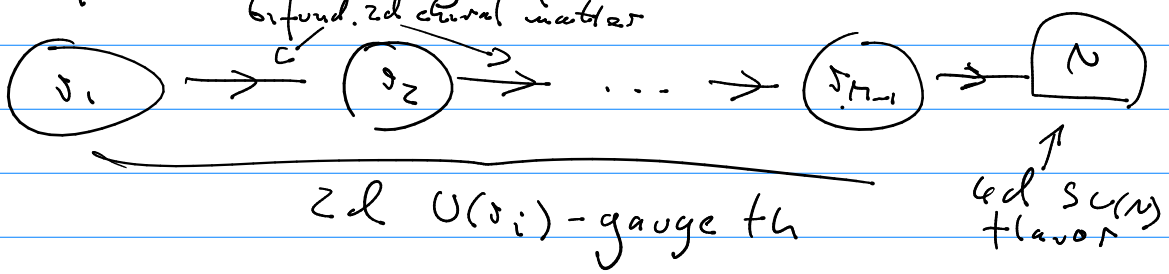
Maxaluisa Frau

- 4d $SU(N) = G$ - gauge theory
  - couple with $(2,2)$ 2d GLSM with G as global symmetry
- e.g. 2d $U(1)$ with scalar in fund. of $SU(2)$

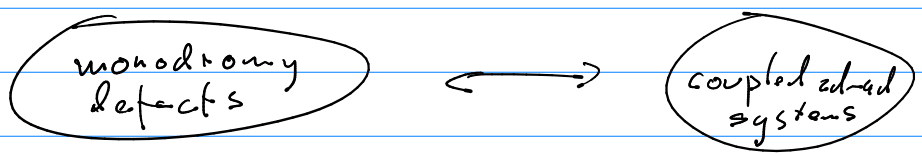
- given twisted superpotential $\widetilde{W} = -\langle \Tr[(\sigma - \varphi)(\log \frac{\sigma - \varphi}{\Lambda_1} - 1)] \rangle$ where $\Lambda_1^2 = e^{2\pi i \tau} \mu^2$
  we find 2d eff. action by $\exp \frac{\partial \widetilde{W}}{\partial \sigma} = 1$
  $\Leftrightarrow$ SW - curve
  $W(\sigma_*)_{inst} = \frac{1}{2u}\left(\Lambda_1^2 - \frac{\Lambda_2^4}{\Lambda_1^2}\right) + \cdots$
  $= \frac{q_1}{2u} - \frac{q_2}{2u} + \cdots$

- matches twisted superpot. from ramified part. function.

- In general case, defect in $SU(N)$-theory is represented by quiver



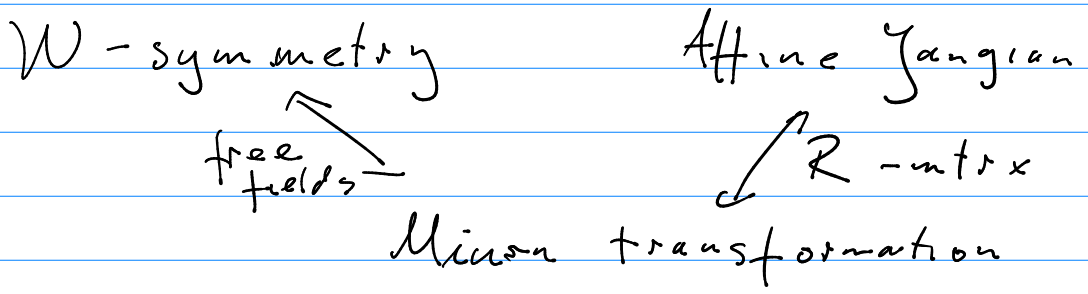
- recap:



W_{inst} from localisations — W_{inst} from vacuum eqn's
- ramified instanton params q_i $\xrightarrow{\text{mass}}$ dynamically gen. scales Λ_i

Tomáš Procházka

- alg. struct's in 2d CFT



- W-algs - extensions of Virasoro by higher spins
- Int. hierarchies of PDE (KdV/KP) ⇝ W-algs are "quantum" KP

- W_3 - alg (Zamolodchikov)

$$T(z)T(w) \sim \frac{c/2}{(z-w)^4} + \frac{2T(w)}{(z-w)^2} + \frac{\partial T}{z-w} + \dots$$

"+" $T(z)W(w) \sim \dots$

"+" $W(z)W(w) \sim \frac{c/3}{(z-w)^6} + \dots$ + nonlinear + ...

(we get from associativity)

- W_∞ - all spins

Can Kozcaz