Lecture 1

Spectral networks and superpotentials for theories of class S

some references
- papers by Gaiotto - Moore - Neitzke
- Gaiotto's "N=2 dualities"
- Nekrasov - Shatashvili
- Nekrasov - Witten
- Teschner - Vartanov

Plan

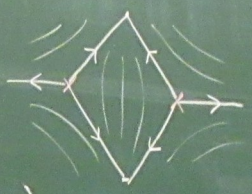
Lecture 1: "Geometry" (follow H - Neitzke '13)
- spectral networks
- abelianization + spectral coordinates

Lecture 2: "Physics" (follow H - Neitzke '16)
- theories of class S
- BPS states
- effective twisted superpotential

Lecture 3: (follow H - Kidwai H - Neitzke (to appear))
- Opers + generating functions
- "string theory magic" relating opers ↔ superpotentials

Lecture 2

- defined spectral network $W(u, \theta)$, $u = (\lambda_1, \dots, \lambda_K)$ 1-diff'ls on C, $\theta \in \mathbb{R}/2\pi\mathbb{Z}$
- two types ($K=2$)
- Fock - Goncharov
  φ_2 generic, θ generic
  (dual to ideal triangulation)



$\Sigma : \prod_{i=1}^{K}(\lambda - \lambda_i) = 0$ CT C

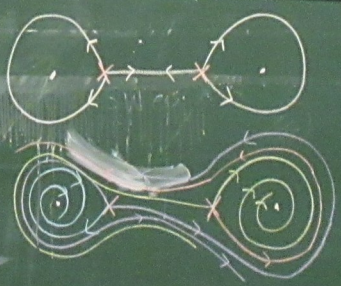
$\downarrow K:1$

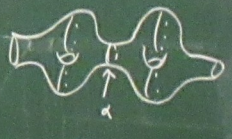
C

$u = (\lambda_1, \lambda_2) = (\lambda_1, -\lambda_1)$

$\varphi_2 = \lambda_1^2$

- Fenchel - Nielsen
  φ_2, θ Strebel





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