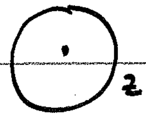
Discussion – Kontsevich

Stokes data



$0 < |z| \ll 1$

meromorphic connection. $\mathbb{C}\{z\}[z^{-1}]$

$\wr$

Formal classification. $\mathbb{C}((z))$

cat. of diff'l modules on is

$\sum c_\alpha z^\alpha$

$\alpha \in \mathbb{Q}_{<0}$

$c_\alpha \in \mathbb{C}$ / identification by cyclic gp. $\mathbb{Z}$

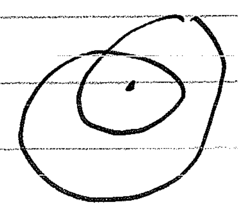
$\bigoplus$ local systems over this covering

Puiseaux Poly's

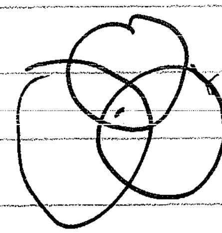
$e^{\sum c_\alpha z^\alpha} \otimes$ reg. singularity.

get  covering of S^1

$\frac{1}{\sqrt{z}}$



c_1/z



Projection of leg. link

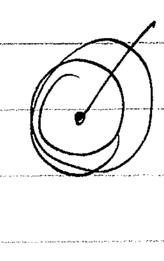
$\subset J^1(S^1)$.

$0 < \varepsilon \ll 1$.

ind. of ε.

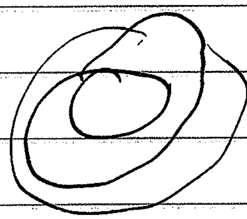
$\left| e^{P(\varepsilon e^{i\varphi})} \right| \cdot e^{i\varphi}$, $\varphi \in \mathbb{R}$.

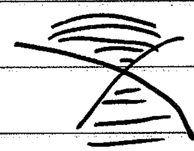
get multi-valued fcn. on circle.



local system on S^1:

flat sections in a ray $R_+ e^{i\theta}$

& filtration ← 

Axiom: 

diff. ray

diff. rays

$F_1 \subset F_2 \subset \cdots \subset F_i \subset F_{i+1} \subset \cdots$

$\;\|\qquad\;\|\qquad\quad \not\| \qquad \|$

$F_1' \subset F_2' \subset \cdots \subset F_i' \subset F_{i+1}' \subset \cdots$

reduce to $0 \subset F_i \subset V$

$0 \subset F_i' \subset V$

complementary subspaces

Associated graded == local systems on

1-dim'l manifold

In general π_1(Leg. link) acts on this guy.

should be sympl., quantization gives same stuff

(Chekanov algebra doesn't work)

Now, several points

$p_i(z-z_i)$

z_i S^1

what are global sols, near each point

⇝ Get variety over $\mathbb{Z}$.

claim it has canonical automorphism

$\frac{1}{\xi} p_{\alpha,i}(z-z_i)$, but varieties are locally the same, so get ξ monodromy..

$\mathbb{P}^1$

$\frac{1}{\sqrt{z}}$

Get $\mathbb{Z}[x,y,z] / xy+yz+zx=0$

quadratic cone, singular cone, has sympl. structure.

Have some ray, s.t. $\mathrm{Re}\, P' = \mathrm{Re}\, P''$ along ray

so same growth.

$\overline{\mathbb{C}((z-z_i))} / \text{regular fns}$ ~~modulo Galois~~

Galois

$\hat{\mathbb{Z}}$

relates to Fuk(some high-dim symp. mfld)

maybe Fuk (T^*C w/ growth @ ∞)

Moduli of objects in Weinstein mfld of finite type should be an alg. variety

Quiver ex:

$\Gamma = \mathbb{Z}^{2n}$ lattice, $\langle \, , \rangle$ form (skew-sym)

$Z : \Gamma \to \mathbb{C}$

$\Omega(\gamma) \in \mathbb{Z}$.

$T_\gamma \quad z^\mu \longrightarrow (1-z^\gamma)^{\langle \gamma, \mu \rangle} z^\mu$

Take antipodal $z \mapsto z^{-1}$ o (for quivers well-defined)

$\mathbb{C}^* \otimes \Gamma$

$\left(\prod_{\mathrm{Im}\, Z(\gamma) > 0} T_\gamma^{\Omega(\gamma)} \right) \rightsquigarrow \phi.$

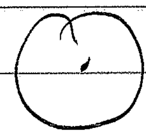
Look at wall crossing: formally conj. class of ϕ doesn't change if you move parameters e.g. $\nearrow \; \searrow$ Quiver a_{ij} $\#\, i \to j$

then get $z_i \longrightarrow \tilde{z}_i$

$$z_i = \frac{1-y_i}{\prod_j y_j^{a_{ij}}}, \quad y_i = 1 + \cdots$$

alg. series in z_i

can solve step by step



$$\tilde{z}_i = \frac{\prod_j y_j^{a_{ji}}}{1-y_i}$$

(for acyclic quivers?? (comp. of mutations))

For general quiver it's an algebraic map, conj. class is preserved

if you move around, this thing conjugate.
For, e.g. Dynkin quivers, this is finite order.
Then look at fixed points, derivatives, dynamics
next thing is a linear growth case.
works for Q w/ 0 potential (DT invts for Q's w/ 0 pot'l)
Q: for nonzero pot'l how to calculate?
cluster algebras are like generic potential.

$\uparrow\uparrow \; \downarrow\downarrow$ mutation gives same quiver.

cluster people call it the Coxeter element
finite order = "periodicity conjecture"