

Garoufalidis on State Integrals and Grothendieck Residues

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Joint w/ Kasharev, but also w/ Anderson.

Building block: QDL, quantum dilogarithm,

$$\phi_b(x) = \exp\left(\frac{1}{4} \int_{\mathbb{R}+i\epsilon} \frac{e^{2\pi i x z}}{\sinh(zb)(\sinh z b^{-1})} \frac{dz}{z}\right)$$

Remarkable meromorphic properties:

Examples

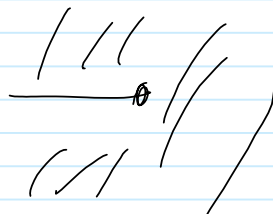
For $B > A > 0$

$$I_{A,B}(b) = \int_{\mathbb{R}+i\epsilon} \phi_b(x)^B e^{-A\pi i x^2} dx$$

analytic in $b^2 \in \mathbb{C} \setminus \mathbb{R}_-$

w/ $q = e^{2\pi i b^2}$

$\bar{q} = e^{-2\pi i b^{-2}}$



$$A \dagger (B, A) = (2, 1) \Rightarrow 4_1$$

$$= (3, 2) \Rightarrow 5_2$$

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