Pensieve header: Computing the Log of the Kink.

Startup

```
Date[]
SetDirectory["C:\\drorbn\\AcademicPensieve\\Projects\\FullDoPeGDO"];
Once[<< KnotTheory`];
Once[Get@"../Profile/Profile.m"];
BeginProfile[];
$k = 1;
<< Engine.m
<< Objects.m
<< KT.m
HL[ℰ_] := Style[ℰ, Background → If[TrueQ@ℰ, , ]];
```

Out[•]= {2021, 8, 20, 19, 22, 15.0584421}

Loading KnotTheory` version of February 2, 2020, 10:53:45.2097.
Read more at http://katlas.org/wiki/KnotTheory.

This is Profile.m of http://www.drorbn.net/AcademicPensieve/Projects/Profile/.

This version: April 2020. Original version: July 1994.

Log[Kink]

In[•]:= $R_{1,2}$

Out[•]= $\mathbb{E}_{\{\}\to\{1,2\}}\left[\hbar\, a_2\, b_1 + \hbar\, x_2\, y_1,\ -\frac{1}{4}\,\hbar^3\, x_2^2\, y_1^2\right]$

In[•]:= $dm_{1,2\to 3}$

Out[•]= $\mathbb{E}_{\{1,2\}\to\{3\}}\left[a_3\ (\alpha_1+\alpha_2) + b_3\,\beta_1 + b_3\,\beta_2 + y_3\,\eta_1 + \frac{y_3\,\eta_2}{\mathcal{A}_1} + \frac{x_3\,\xi_1}{\mathcal{A}_2} - \frac{(-1+B_3)\,\eta_2\,\xi_1}{\hbar} + x_3\,\xi_2,\right.$
$-\frac{y_3\,\beta_1\,\eta_2}{\mathcal{A}_1} - \frac{x_3\,\beta_2\,\xi_1}{\mathcal{A}_2} + a_3\,B_3\,\eta_2\,\xi_1 + \frac{\hbar\, x_3\, y_3\,\eta_2\,\xi_1}{\mathcal{A}_1\,\mathcal{A}_2} -$
$\left.\frac{(-1+3B_3)\,y_3\,\eta_2^2\,\xi_1}{2\,\mathcal{A}_1} - \frac{(-1+3B_3)\,x_3\,\eta_2\,\xi_1^2}{2\,\mathcal{A}_2} + \frac{(-1+B_3)\times(-1+3B_3)\,\eta_2^2\,\xi_1^2}{4\,\hbar}\right]$

In[•]:= $Kink_i$

Out[•]= $\mathbb{E}_{\{\}\to\{i\}}\left[\frac{\hbar\, b_i}{2} + \hbar\, a_i\, b_i + \hbar\, x_i\, y_i,\ \frac{\hbar\, a_i}{2} - \frac{1}{4}\,\hbar^3\, x_i^2\, y_i^2\right]$

In[•]:= `Block[{$k = 0}, Log_dm[Kink_i]]`

Solve: Inverse functions are being used by Solve, so some solutions may not be found; use Reduce for complete solution information.

Out[•]= $\mathbb{U}_{\{\}\to\{i\}}\left[\frac{\hbar\, b_i}{2} + \hbar\, a_i\, b_i - \frac{\hbar^2\, b_i\, x_i\, y_i}{-1+B_i}\right]$

In[•]:=
```
Timing@Block[{$k = 1}, Log_dm[Kink_i]]
```

Solve: Inverse functions are being used by Solve, so some solutions may not be found; use Reduce for complete solution information.

Out[•]=
$$\left\{12.7188,\ \mathbb{U}_{\{\}\to\{i\}}\left[\frac{\hbar\, b_i}{2}+\hbar\, a_i\, b_i-\frac{\hbar^2\, b_i\, x_i\, y_i}{-1+B_i},\right.\right.$$
$$\left.\left.\frac{\hbar\, a_i}{2}-\frac{\hbar^2\, a_i\,(-1+B_i+\hbar\, b_i\, B_i)\, x_i\, y_i}{(-1+B_i)^2}+\frac{\hbar^3\,(-2+\hbar\, b_i+2\,B_i+\hbar\, b_i\, B_i)\, x_i^2\, y_i^2}{2\,(-1+B_i)^3}\right]\right\}$$

In[•]:=
```
Timing@Block[{$k = 2}, Log_dm[Kink_i]]
```

Solve: Inverse functions are being used by Solve, so some solutions may not be found; use Reduce for complete solution information.

Out[•]=
$$\left\{815.594,\ \mathbb{U}_{\{\}\to\{i\}}\left[\frac{\hbar\, b_i}{2}+\hbar\, a_i\, b_i-\frac{\hbar^2\, b_i\, x_i\, y_i}{-1+B_i},\right.\right.$$
$$\frac{\hbar\, a_i}{2}-\frac{\hbar^2\, a_i\,(-1+B_i+\hbar\, b_i\, B_i)\, x_i\, y_i}{(-1+B_i)^2}+\frac{\hbar^3\,(-2+\hbar\, b_i+2\,B_i+\hbar\, b_i\, B_i)\, x_i^2\, y_i^2}{2\,(-1+B_i)^3},$$
$$-\frac{\hbar^3\, a_i^2\, B_i\,(-2+\hbar\, b_i+2\,B_i+\hbar\, b_i\, B_i)\, x_i\, y_i}{2\,(-1+B_i)^3}-\frac{\hbar^4\left(-1-4\,B_i+4\,\hbar\, b_i\, B_i+5\,B_i^2+2\,\hbar\, b_i\, B_i^2\right) x_i^2\, y_i^2}{2\,(-1+B_i)^4}+$$
$$\left.\left.\frac{\hbar^4\, a_i\left(-1-4\,B_i+4\,\hbar\, b_i\, B_i+5\,B_i^2+2\,\hbar\, b_i\, B_i^2\right) x_i^2\, y_i^2}{2\,(-1+B_i)^4}-\frac{\hbar^5\left(-3+\hbar\, b_i+4\,\hbar\, b_i\, B_i+3\,B_i^2+\hbar\, b_i\, B_i^2\right) x_i^3\, y_i^3}{3\,(-1+B_i)^5}\right]\right\}$$

In[•]:=
```
Timing@Block[{$k = 3}, Log_dm[Kink_i]]
```

Solve: Inverse functions are being used by Solve, so some solutions may not be found; use Reduce for complete solution information.

Out[•]=

$$\left\{38\,376.3,\ \mathbb{U}_{\{\}\to\{i\}}\left[\frac{\hbar\, b_i}{2}+\hbar\, a_i\, b_i-\frac{\hbar^2\, b_i\, x_i\, y_i}{-1+B_i},\right.\right.$$

$$\frac{\hbar\, a_i}{2}-\frac{\hbar^2\, a_i\,(-1+B_i+\hbar\, b_i\, B_i)\, x_i\, y_i}{(-1+B_i)^2}+\frac{\hbar^3\,(-2+\hbar\, b_i+2\,B_i+\hbar\, b_i\, B_i)\, x_i^2\, y_i^2}{2\,(-1+B_i)^3},$$

$$-\frac{\hbar^3\, a_i^2\, B_i\,(-2+\hbar\, b_i+2\,B_i+\hbar\, b_i\, B_i)\, x_i\, y_i}{2\,(-1+B_i)^3}-\frac{\hbar^4\left(-1-4\,B_i+4\,\hbar\, b_i\, B_i+5\,B_i^2+2\,\hbar\, b_i\, B_i^2\right) x_i^2\, y_i^2}{2\,(-1+B_i)^4}+$$

$$\frac{\hbar^4\, a_i\left(-1-4\,B_i+4\,\hbar\, b_i\, B_i+5\,B_i^2+2\,\hbar\, b_i\, B_i^2\right) x_i^2\, y_i^2}{2\,(-1+B_i)^4}-\frac{\hbar^5\left(-3+\hbar\, b_i+4\,\hbar\, b_i\, B_i+3\,B_i^2+\hbar\, b_i\, B_i^2\right) x_i^3\, y_i^3}{3\,(-1+B_i)^5},$$

$$-\frac{\hbar^4\, a_i^3\, B_i\left(-3+\hbar\, b_i+4\,\hbar\, b_i\, B_i+3\,B_i^2+\hbar\, b_i\, B_i^2\right) x_i\, y_i}{6\,(-1+B_i)^4}-$$

$$\frac{2\,\hbar^5\, a_i\, B_i\left(-3+\hbar\, b_i+4\,\hbar\, b_i\, B_i+3\,B_i^2+\hbar\, b_i\, B_i^2\right) x_i^2\, y_i^2}{(-1+B_i)^5}+$$

$$\frac{\hbar^5\, a_i^2\, B_i\left(-3+\hbar\, b_i+4\,\hbar\, b_i\, B_i+3\,B_i^2+\hbar\, b_i\, B_i^2\right) x_i^2\, y_i^2}{(-1+B_i)^5}+$$

$$\frac{\hbar^5\left(-\hbar\, b_i-96\,B_i+37\,\hbar\, b_i\, B_i+24\,B_i^2+109\,\hbar\, b_i\, B_i^2+72\,B_i^3+23\,\hbar\, b_i\, B_i^3\right) x_i^2\, y_i^2}{24\,(-1+B_i)^5}+$$

$$\frac{2\,\hbar^6\left(-1-18\,B_i+9\,\hbar\, b_i\, B_i+9\,B_i^2+18\,\hbar\, b_i\, B_i^2+10\,B_i^3+3\,\hbar\, b_i\, B_i^3\right) x_i^3\, y_i^3}{3\,(-1+B_i)^6}-$$

$$\frac{\hbar^6\, a_i\left(-1-18\,B_i+9\,\hbar\, b_i\, B_i+9\,B_i^2+18\,\hbar\, b_i\, B_i^2+10\,B_i^3+3\,\hbar\, b_i\, B_i^3\right) x_i^3\, y_i^3}{3\,(-1+B_i)^6}+$$

$$\left.\left.\frac{\hbar^7\left(-11+3\,\hbar\, b_i-27\,B_i+27\,\hbar\, b_i\, B_i+27\,B_i^2+27\,\hbar\, b_i\, B_i^2+11\,B_i^3+3\,\hbar\, b_i\, B_i^3\right) x_i^4\, y_i^4}{12\,(-1+B_i)^7}\right]\right\}$$