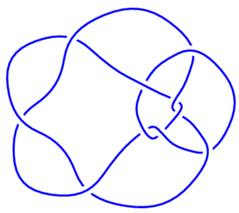
10_{91} $(K10a_{106})$



1

Arc Sequences

$\to\downarrow\to\uparrow\to\downarrow\to\uparrow\to\uparrow\to\downarrow\to\uparrow\to\uparrow\to\downarrow\to\downarrow\to$

9 7 1 8 2 10 4 5 6 3

Solving Sequence

$$2{,}5 \xrightarrow[c_5]{} 6{,}9 \xrightarrow[c_9]{} 10 \xrightarrow[c_1]{} 1 \xrightarrow[c_8]{} 8 \xrightarrow[c_4]{} 4 \xrightarrow[c_3]{} 3 \xrightarrow[c_7]{} 7 \twoheadrightarrow c_2, c_6, c_{10}$$

Representation Ideals

$$I = I_1^u$$

$$I_1^u = \langle u^{36} + 3u^{35} + \cdots + 4u + 1,\ -3.31027 \times 10^{59} u^{35} - 9.19843 \times 10^{59} u^{34} + \cdots + 2.29152 \times 10^{59} a - 2.34475 \times 10$$
$$- 8.72322 \times 10^{59} u^{35} - 2.32033 \times 10^{60} u^{34} + \cdots + 2.29152 \times 10^{59} b - 3.62448 \times 10^{60} \rangle$$

There are 1 irreducible components with 36 representations.

[1]The knot diagram image is adapter from "C. Livingston and A. H. Moore, KnotInfo: Table of Knot Invariants, http://www.indiana.edu/ knotinfo"

I. $I_1^u =$
$$\langle u^{36}+3u^{35}+\cdots+4u+1,\ -3.31\times10^{59}u^{35}-9.20\times10^{59}u^{34}+\cdots+2.29\times10^{59}a-2.34\times10^{60},\ -8.72\times10^{59}u^{35}-2.32\times10^{60}u^{34}+\cdots+2.29\times10^{59}b-3.62\times10^{60}\rangle$$

(i) Arc colorings

$$a_2 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_5 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_6 = \begin{pmatrix}u\\u\end{pmatrix}$$
$$a_9 = \begin{pmatrix}1.44457u^{35}+4.01412u^{34}+\cdots+1.88796u+10.2323\\3.80674u^{35}+10.1257u^{34}+\cdots-7.94492u+15.8169\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}0.761982u^{35}+2.39916u^{34}+\cdots+0.350575u+9.25740\\3.12415u^{35}+8.51076u^{34}+\cdots-9.48231u+14.8420\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-18.0702u^{35}-50.6761u^{34}+\cdots+95.1720u-96.6480\\-30.8033u^{35}-86.9767u^{34}+\cdots+175.704u-161.693\end{pmatrix}$$
$$a_8 = \begin{pmatrix}1.44457u^{35}+4.01412u^{34}+\cdots+1.88796u+10.2323\\3.70299u^{35}+9.91247u^{34}+\cdots-8.11109u+16.1365\end{pmatrix}$$
$$a_4 = \begin{pmatrix}3.54742u^{35}+9.51301u^{34}+\cdots-23.7481u+9.94207\\4.30941u^{35}+11.9122u^{34}+\cdots-23.3975u+19.1995\end{pmatrix}$$
$$a_3 = \begin{pmatrix}-16.6329u^{35}-46.6201u^{34}+\cdots+78.3851u-88.7817\\-27.1394u^{35}-76.8626u^{34}+\cdots+158.881u-144.872\end{pmatrix}$$
$$a_7 = \begin{pmatrix}0.343503u^{35}+0.373157u^{34}+\cdots+3.19875u-7.50533\\-1.56802u^{35}-4.73861u^{34}+\cdots+14.6925u-12.1102\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 19.1243u^{35}+55.3613u^{34}+\cdots-153.441u+116.659$

(iv) Complex Volumes and Cusp Shapes

Solution to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.97862$ $a = -0.626870$ $b = -1.25957$	-2.81937	-4.82435
$u = -1.23377 - 1.07634I$ $a = -0.819987 + 0.469041I$ $b = -1.27317 + 1.25139I$	$0.21259 + 13.48702I$	$-0.24108 - 7.25261I$
$u = -1.23377 + 1.07634I$ $a = -0.819987 - 0.469041I$ $b = -1.27317 - 1.25139I$	$0.21259 - 13.48702I$	$-0.24108 + 7.25261I$
$u = -1.054912 - 0.707129I$ $a = 1.116354 - 0.443560I$ $b = 0.75508 - 1.20036I$	$5.07523 + 8.06301I$	$3.02585 - 6.30948I$
$u = -1.054912 + 0.707129I$ $a = 1.116354 + 0.443560I$ $b = 0.75508 + 1.20036I$	$5.07523 - 8.06301I$	$3.02585 + 6.30948I$
$u = -0.86276 - 1.13441I$ $a = 0.463292 - 0.000224I$ $b = 0.782028 - 0.784960I$	$-1.74249 + 4.24043I$	$-1.82805 - 7.42803I$
$u = -0.86276 + 1.13441I$ $a = 0.463292 + 0.000224I$ $b = 0.782028 + 0.784960I$	$-1.74249 - 4.24043I$	$-1.82805 + 7.42803I$
$u = -0.83255 - 1.84941I$ $a = 0.205073 - 0.624972I$ $b = -0.115489 - 0.096785I$	$-1.18988 - 4.20357I$	$-3.06671 + 5.28453I$
$u = -0.83255 + 1.84941I$ $a = 0.205073 + 0.624972I$ $b = -0.115489 + 0.096785I$	$-1.18988 + 4.20357I$	$-3.06671 - 5.28453I$
$u = -0.783648$ $a = 1.71437$ $b = 2.26792$	1.82908	7.56325

Solution to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.666157$ $a=-0.613811$ $b=-2.30667$	-3.87788	10.5717
$u=-0.655211-0.344667I$ $a=-0.885800-0.100885I$ $b=-0.240680+0.446109I$	$1.145860+0.715757I$	$6.11111-2.29185I$
$u=-0.655211+0.344667I$ $a=-0.885800+0.100885I$ $b=-0.240680-0.446109I$	$1.145860-0.715757I$	$6.11111+2.29185I$
$u=-0.599144-0.276178I$ $a=-2.21935+0.28130I$ $b=-0.096183+0.675717I$	$2.04431+1.84068I$	$4.68288-8.03908I$
$u=-0.599144+0.276178I$ $a=-2.21935-0.28130I$ $b=-0.096183-0.675717I$	$2.04431-1.84068I$	$4.68288+8.03908I$
$u=-0.596861-0.788108I$ $a=-0.242518-1.049299I$ $b=-0.764356+0.457053I$	$-5.71207+3.85049I$	$-4.56018-4.43001I$
$u=-0.596861+0.788108I$ $a=-0.242518+1.049299I$ $b=-0.764356-0.457053I$	$-5.71207-3.85049I$	$-4.56018+4.43001I$
$u=-0.364301-0.998527I$ $a=-0.361949+1.240855I$ $b=\ \ 0.070588+1.192689I$	$3.05261-2.19942I$	$3.77042+2.93592I$
$u=-0.364301+0.998527I$ $a=-0.361949-1.240855I$ $b=\ \ 0.070588-1.192689I$	$3.05261+2.19942I$	$3.77042-2.93592I$
$u=-0.197815$ $a=\ \ 7.05878$ $b=\ \ 11.8453$	1.61132	108.028

Solution to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.291240$ $a = 5.03258$ $b = 1.14589$	3.38902	2.54879
$u = 0.334662 - 0.478231I$ $a = 0.333369 - 0.546843I$ $b = 0.821327 - 0.541469I$	$-1.76218 + 0.65074I$	$-4.85797 + 0.85968I$
$u = 0.334662 + 0.478231I$ $a = 0.333369 + 0.546843I$ $b = 0.821327 + 0.541469I$	$-1.76218 - 0.65074I$	$-4.85797 - 0.85968I$
$u = 0.363747 - 0.611537I$ $a = 0.293395 - 0.675001I$ $b = 0.732851 + 0.770079I$	$-1.81388 - 1.13467I$	$-1.97456 - 1.07001I$
$u = 0.363747 + 0.611537I$ $a = 0.293395 + 0.675001I$ $b = 0.732851 - 0.770079I$	$-1.81388 + 1.13467I$	$-1.97456 + 1.07001I$
$u = 0.545551$ $a = 3.11845$ $b = 0.160509$	3.00176	10.8052
$u = 0.654993 - 0.449217I$ $a = 1.039300 - 0.682747I$ $b = 0.533275 + 0.707844I$	$-0.97788 - 3.67922I$	$0.14859 + 9.07649I$
$u = 0.654993 + 0.449217I$ $a = 1.039300 + 0.682747I$ $b = 0.533275 - 0.707844I$	$-0.97788 + 3.67922I$	$0.14859 - 9.07649I$
$u = 0.929780 - 1.022855I$ $a = -0.683233 + 0.149154I$ $b = -1.121552 - 0.852341I$	$-6.25192 - 9.33147I$	$-3.94994 + 7.24799I$
$u = 0.929780 + 1.022855I$ $a = -0.683233 - 0.149154I$ $b = -1.121552 + 0.852341I$	$-6.25192 + 9.33147I$	$-3.94994 - 7.24799I$

Solution to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.165919 - 0.592798I$ $a = -1.070960 - 0.409243I$ $b = -0.758864 - 0.884508I$	$7.75318 - 2.83746I$	$7.01403 + 1.48287I$
$u = 1.165919 + 0.592798I$ $a = -1.070960 + 0.409243I$ $b = -0.758864 + 0.884508I$	$7.75318 + 2.83746I$	$7.01403 - 1.48287I$
$u = 1.18896 - 1.05208I$ $a = -0.159545 + 0.295093I$ $b = -0.772162 - 0.170169I$	$-5.66880 + 1.84316I$	$-9.44552 - 3.91915I$
$u = 1.18896 + 1.05208I$ $a = -0.159545 - 0.295093I$ $b = -0.772162 + 0.170169I$	$-5.66880 - 1.84316I$	$-9.44552 + 3.91915I$
$u = 1.45617 - 1.22075I$ $a = 0.650818 + 0.416864I$ $b = 1.020614 + 0.972691I$	$4.26834 - 6.86007I$	$1.82484 + 5.82095I$
$u = 1.45617 + 1.22075I$ $a = 0.650818 - 0.416864I$ $b = 1.020614 - 0.972691I$	$4.26834 + 6.86007I$	$1.82484 - 5.82095I$

II. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1	$(u^{36} + 11u^{35} + \cdots - 6u + 1)$
c_2	$(u^{36} + 15u^{35} + \cdots + 172u + 43)$
c_3, c_{10}	$(u^{36} + u^{35} + \cdots + 14u + 1)$
c_4, c_7, c_8	$(u^{36} + 3u^{35} + \cdots + 3u^2 + 1)$
c_5	$(u^{36} + 3u^{35} + \cdots + 4u + 1)$
c_6, c_9	$(u^{36} + u^{35} + \cdots + 3u^2 + 1)$

III. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1	$(y^{36} - 151y^{35} + \cdots - 50y + 1)$
c_2	$(y^{36} - 127y^{35} + \cdots + 24510y + 1849)$
c_3, c_{10}	$(y^{36} - 23y^{35} + \cdots - 134y + 1)$
c_4, c_7, c_8	$(y^{36} - 35y^{35} + \cdots + 6y + 1)$
c_5	$(y^{36} - 3y^{35} + \cdots - 46y + 1)$
c_6, c_9	$(y^{36} - 27y^{35} + \cdots + 6y + 1)$