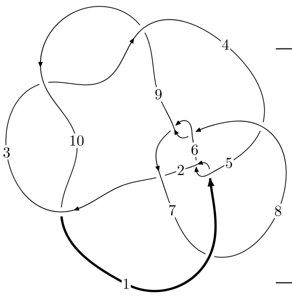
10_{90} $(K10a_{92})$



A knot diagram[1]

Linearized knot diagam

$$\to \underset{5}{\uparrow} \to \underset{7}{\uparrow} \to \underset{10}{\downarrow} \to \underset{8}{\downarrow} \to \underset{2}{\uparrow} \to \underset{9}{\downarrow} \to \underset{1}{\uparrow} \to \underset{6}{\downarrow} \to \underset{4}{\downarrow} \to \underset{3}{\downarrow} \to$$

Solving Sequence

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

Ideals for irreducible components[2]of $X_{\mathbf{par}}$

$$I_1^u = \langle -3.45798 \times 10^{19} u^{39} - 4.51348 \times 10^{19} u^{38} + \cdots + 2.27356 \times 10^{21} b + 2.73076 \times 10^{21},$$
$$- 7.03658 \times 10^{21} u^{39} + 1.13904 \times 10^{22} u^{38} + \cdots + 6.82068 \times 10^{21} a + 1.48581 \times 10^{21},\ u^{40} - 2u^{39} + \cdots - 2u -$$
$$I_2^u = \langle b + 1,\ 3a - 2u + 1,\ u^2 - u + 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 42 representations.

[1]The image of knot diagram is generated by the software "**Draw programme**" developed by Andrew Bartholomew(`http://www.layer8.co.uk/maths/draw/index.htm#Running-draw`), where we modified some parts for our purpose(`https://github.com/CATsTAILs/LinksPainter`).

[2]All coefficients of polynomials are rational numbers. But the coefficients are sometimes approximated in decimal forms when there is not enough margin.

I.

$$\boldsymbol{I_1^u = \langle -3.46\times10^{19}u^{39} - 4.51\times10^{19}u^{38} + \cdots + 2.27\times10^{21}b + 2.73\times10^{21},\ -7.04\times10^{21}u^{39} + 1.14\times10^{22}u^{38} + \cdots + 6.82\times10^{21}a + 1.49\times10^{21},\ u^{40} - 2u^{39} + \cdots - 2u + 1\rangle}$$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 1.03165u^{39} - 1.66999u^{38} + \cdots - 9.20228u - 0.217839 \\ 0.0152095u^{39} + 0.0198520u^{38} + \cdots + 0.294657u - 1.20110 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -1.20596u^{39} + 2.67703u^{38} + \cdots - 4.75631u - 2.57467 \\ 0.765706u^{39} - 1.55826u^{38} + \cdots + 3.94732u - 1.22640 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1.04686u^{39} - 1.65014u^{38} + \cdots - 8.90762u - 1.41894 \\ 0.0152095u^{39} + 0.0198520u^{38} + \cdots + 0.294657u - 1.20110 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.829665u^{39} + 2.71973u^{38} + \cdots - 11.3323u - 2.16330 \\ 0.136920u^{39} - 0.520550u^{38} + \cdots + 3.27950u - 1.01464 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1.00098u^{39} - 1.67814u^{38} + \cdots - 9.29825u - 0.212902 \\ -0.101227u^{39} + 0.144212u^{38} + \cdots - 0.00592179u - 1.04475 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{2370918909209835708564\,1}{20462029573507327146753}u^{39} + \frac{596704212257115069303\,9}{2273558841500814127417}u^{38} + \cdots - \frac{15100957164705839984103\,7}{6820676524502442382251}u + \frac{3642571258202558184821\,0}{20462029573507327146753}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5	$u^{40} - 2u^{39} + \cdots - 2u + 1$
c_2	$3(3u^{40} + 19u^{39} + \cdots + 64u + 32)$
c_3, c_9, c_{10}	$u^{40} - 2u^{39} + \cdots - 2u + 1$
c_4	$3(3u^{40} - 10u^{39} + \cdots - 192u + 103)$
c_6, c_8	$u^{40} - 3u^{39} + \cdots - 31u + 9$
c_7	$u^{40} - 3u^{39} + \cdots - 156u + 36$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5	$y^{40} - 22y^{39} + \cdots - 4y + 1$
c_2	$9(9y^{40} - 181y^{39} + \cdots - 13312y + 1024)$
c_3, c_9, c_{10}	$y^{40} + 38y^{39} + \cdots - 4y + 1$
c_4	$9(9y^{40} + 38y^{39} + \cdots + 78084y + 10609)$
c_6, c_8	$y^{40} - 21y^{39} + \cdots + 389y + 81$
c_7	$y^{40} - 15y^{39} + \cdots - 7416y + 1296$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.718542 + 0.684654I$ $a = -0.109960 - 0.256762I$ $b = 1.052260 - 0.485181I$	$1.29563 + 4.66233I$	$-0.05723 - 4.37430I$
$u = 0.718542 - 0.684654I$ $a = -0.109960 + 0.256762I$ $b = 1.052260 + 0.485181I$	$1.29563 - 4.66233I$	$-0.05723 + 4.37430I$
$u = -0.875135 + 0.400189I$ $a = 0.674482 + 0.656422I$ $b = 1.057710 - 0.370943I$	$-2.73210 + 3.80447I$	$-3.64129 - 6.83498I$
$u = -0.875135 - 0.400189I$ $a = 0.674482 - 0.656422I$ $b = 1.057710 + 0.370943I$	$-2.73210 - 3.80447I$	$-3.64129 + 6.83498I$
$u = 0.812016 + 0.457171I$ $a = 0.695937 - 0.974226I$ $b = 1.221190 + 0.590650I$	$0.61792 - 9.83239I$	$-1.42359 + 7.89553I$
$u = 0.812016 - 0.457171I$ $a = 0.695937 + 0.974226I$ $b = 1.221190 - 0.590650I$	$0.61792 + 9.83239I$	$-1.42359 - 7.89553I$
$u = -0.668019 + 0.947602I$ $a = 0.128837 + 0.281540I$ $b = 0.847605 + 0.160546I$	$-1.20798 + 1.63374I$	$5.34484 + 3.65075I$
$u = -0.668019 - 0.947602I$ $a = 0.128837 - 0.281540I$ $b = 0.847605 - 0.160546I$	$-1.20798 - 1.63374I$	$5.34484 - 3.65075I$
$u = 0.548023 + 0.473980I$ $a = -0.128815 + 0.412875I$ $b = 0.217702 - 0.991146I$	$3.67375 - 4.20324I$	$2.19223 + 6.09439I$
$u = 0.548023 - 0.473980I$ $a = -0.128815 - 0.412875I$ $b = 0.217702 + 0.991146I$	$3.67375 + 4.20324I$	$2.19223 - 6.09439I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.042556 + 1.284610I$ $a = 0.906133 + 0.658831I$ $b = -1.55343 - 0.24102I$	$1.29749 - 1.62987I$	$0. + 3.54187I$
$u = 0.042556 - 1.284610I$ $a = 0.906133 - 0.658831I$ $b = -1.55343 + 0.24102I$	$1.29749 + 1.62987I$	$0. - 3.54187I$
$u = 0.635260 + 0.284826I$ $a = 1.38094 - 0.39057I$ $b = 0.418271 + 0.528348I$	$3.12136 + 0.50572I$	$2.23334 + 2.05026I$
$u = 0.635260 - 0.284826I$ $a = 1.38094 + 0.39057I$ $b = 0.418271 - 0.528348I$	$3.12136 - 0.50572I$	$2.23334 - 2.05026I$
$u = 0.088735 + 1.341390I$ $a = 0.61542 + 1.56781I$ $b = -1.177540 - 0.538211I$	$1.96980 - 1.69833I$	0
$u = 0.088735 - 1.341390I$ $a = 0.61542 - 1.56781I$ $b = -1.177540 + 0.538211I$	$1.96980 + 1.69833I$	0
$u = -0.145572 + 1.361910I$ $a = 0.63895 - 1.93494I$ $b = -0.97948 + 1.02345I$	$3.71762 + 5.12635I$	0
$u = -0.145572 - 1.361910I$ $a = 0.63895 + 1.93494I$ $b = -0.97948 - 1.02345I$	$3.71762 - 5.12635I$	0
$u = -0.054010 + 1.410140I$ $a = 1.50150 - 2.72344I$ $b = -0.809247 + 0.079779I$	$5.39390 + 0.19809I$	0
$u = -0.054010 - 1.410140I$ $a = 1.50150 + 2.72344I$ $b = -0.809247 - 0.079779I$	$5.39390 - 0.19809I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.29805 + 1.43344I$ $a = 0.374682 - 1.281700I$ $b = 0.859448 + 0.587652I$	$8.54985 - 3.07602I$	0
$u = 0.29805 - 1.43344I$ $a = 0.374682 + 1.281700I$ $b = 0.859448 - 0.587652I$	$8.54985 + 3.07602I$	0
$u = -0.491071 + 0.191924I$ $a = -0.398403 - 1.001630I$ $b = -1.093680 + 0.645721I$	$-1.16688 + 2.84021I$	$-5.40123 - 7.45362I$
$u = -0.491071 - 0.191924I$ $a = -0.398403 + 1.001630I$ $b = -1.093680 - 0.645721I$	$-1.16688 - 2.84021I$	$-5.40123 + 7.45362I$
$u = -0.334189 + 0.406515I$ $a = 0.489517 - 0.524451I$ $b = -0.086689 + 0.335230I$	$-0.073174 + 1.047740I$	$-1.21383 - 6.28305I$
$u = -0.334189 - 0.406515I$ $a = 0.489517 + 0.524451I$ $b = -0.086689 - 0.335230I$	$-0.073174 - 1.047740I$	$-1.21383 + 6.28305I$
$u = -0.14754 + 1.48353I$ $a = -0.198631 - 1.161320I$ $b = 0.205553 + 0.846197I$	$6.24860 + 2.92553I$	0
$u = -0.14754 - 1.48353I$ $a = -0.198631 + 1.161320I$ $b = 0.205553 - 0.846197I$	$6.24860 - 2.92553I$	0
$u = 0.19425 + 1.47878I$ $a = -0.63962 + 1.50949I$ $b = 0.365197 - 1.279800I$	$10.00150 - 6.93788I$	0
$u = 0.19425 - 1.47878I$ $a = -0.63962 - 1.50949I$ $b = 0.365197 + 1.279800I$	$10.00150 + 6.93788I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.31725 + 1.49380I$ $a = -0.15513 + 1.42791I$ $b = 1.180340 - 0.563412I$	$3.39122 + 8.09434I$	0
$u = -0.31725 - 1.49380I$ $a = -0.15513 - 1.42791I$ $b = 1.180340 + 0.563412I$	$3.39122 - 8.09434I$	0
$u = 0.29587 + 1.50669I$ $a = -0.25279 - 1.73575I$ $b = 1.29708 + 0.71454I$	$6.9750 - 13.8661I$	0
$u = 0.29587 - 1.50669I$ $a = -0.25279 + 1.73575I$ $b = 1.29708 - 0.71454I$	$6.9750 + 13.8661I$	0
$u = 0.16112 + 1.56360I$ $a = -0.602788 + 0.551528I$ $b = 0.727804 - 0.598256I$	$8.93627 + 1.59631I$	0
$u = 0.16112 - 1.56360I$ $a = -0.602788 - 0.551528I$ $b = 0.727804 + 0.598256I$	$8.93627 - 1.59631I$	0
$u = 0.424864 + 0.027630I$ $a = -1.51964 + 0.31762I$ $b = -1.269680 - 0.070813I$	$-2.32372 - 0.01230I$	$-6.85568 - 1.19794I$
$u = 0.424864 - 0.027630I$ $a = -1.51964 - 0.31762I$ $b = -1.269680 + 0.070813I$	$-2.32372 + 0.01230I$	$-6.85568 + 1.19794I$
$u = -0.186501 + 0.360437I$ $a = 3.93271 - 1.95945I$ $b = -0.980417 - 0.195912I$	$-0.113312 - 0.691322I$	$2.03417 - 9.81182I$
$u = -0.186501 - 0.360437I$ $a = 3.93271 + 1.95945I$ $b = -0.980417 + 0.195912I$	$-0.113312 + 0.691322I$	$2.03417 + 9.81182I$

II. $\boldsymbol{I_2^u = \langle b+1,\ 3a-2u+1,\ u^2-u+1\rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ u-1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ u-1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u \\ u-2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} \frac{2}{3}u - \frac{1}{3} \\ -1 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} u + \frac{1}{3} \\ \frac{5}{3}u - \frac{4}{3} \end{pmatrix}$$
$$a_6 = \begin{pmatrix} \frac{2}{3}u - \frac{4}{3} \\ -1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} \frac{1}{3}u \\ \frac{4}{3}u - \frac{2}{3} \end{pmatrix}$$
$$a_8 = \begin{pmatrix} \frac{2}{3}u - \frac{1}{3} \\ -1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{20}{3}u - 9$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_3	$u^2 + u + 1$
c_2	$3(3u^2 + 1)$
c_4	$3(3u^2 - 3u + 1)$
c_5, c_9, c_{10}	$u^2 - u + 1$
c_6	$(u - 1)^2$
c_7	u^2
c_8	$(u + 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_5 c_9, c_{10}	$y^2 + y + 1$
c_2	$9(3y+1)^2$
c_4	$9(9y^2 - 3y + 1)$
c_6, c_8	$(y-1)^2$
c_7	y^2

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad 0.500000 + 0.866025I$ $a = \quad 0.577350I$ $b = -1.00000$	$-1.64493 - 2.02988I$	$-5.66667 + 5.77350I$
$u = \quad 0.500000 - 0.866025I$ $a = \quad -\ 0.577350I$ $b = -1.00000$	$-1.64493 + 2.02988I$	$-5.66667 - 5.77350I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^2+u+1)(u^{40}-2u^{39}+\cdots-2u+1)$
c_2	$9(3u^2+1)(3u^{40}+19u^{39}+\cdots+64u+32)$
c_3	$(u^2+u+1)(u^{40}-2u^{39}+\cdots-2u+1)$
c_4	$9(3u^2-3u+1)(3u^{40}-10u^{39}+\cdots-192u+103)$
c_5	$(u^2-u+1)(u^{40}-2u^{39}+\cdots-2u+1)$
c_6	$((u-1)^2)(u^{40}-3u^{39}+\cdots-31u+9)$
c_7	$u^2(u^{40}-3u^{39}+\cdots-156u+36)$
c_8	$((u+1)^2)(u^{40}-3u^{39}+\cdots-31u+9)$
c_9, c_{10}	$(u^2-u+1)(u^{40}-2u^{39}+\cdots-2u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_5	$(y^2+y+1)(y^{40}-22y^{39}+\cdots-4y+1)$
c_2	$81(3y+1)^2(9y^{40}-181y^{39}+\cdots-13312y+1024)$
c_3, c_9, c_{10}	$(y^2+y+1)(y^{40}+38y^{39}+\cdots-4y+1)$
c_4	$81(9y^2-3y+1)(9y^{40}+38y^{39}+\cdots+78084y+10609)$
c_6, c_8	$((y-1)^2)(y^{40}-21y^{39}+\cdots+389y+81)$
c_7	$y^2(y^{40}-15y^{39}+\cdots-7416y+1296)$