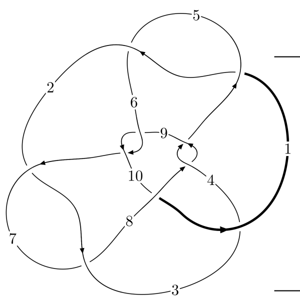
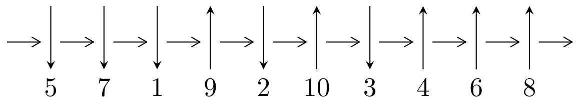
10_{109} $(K10a_{93})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 1.20732 \times 10^{64} u^{47} - 6.80471 \times 10^{63} u^{46} + \cdots + 4.78500 \times 10^{62} b + 3.10961 \times 10^{64},$$
$$2.36806 \times 10^{62} u^{47} - 2.05373 \times 10^{62} u^{46} + \cdots + 1.01808 \times 10^{61} a + 8.42639 \times 10^{62},\ u^{48} - u^{47} + \cdots + 3u - 1\rangle$$
$$I_2^u = \langle u^3 + 2u^2 + b - u - 1,\ -2u^5 - 3u^4 + 4u^3 + 5u^2 + a - u - 5,\ u^6 + 2u^5 - u^4 - 3u^3 - u^2 + 2u + 1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 54 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.

$\boldsymbol{I_1^u = \langle 1.21\times 10^{64}u^{47} - 6.80\times 10^{63}u^{46} + \cdots + 4.78\times 10^{62}b + 3.11\times 10^{64},\ 2.37\times 10^{62}u^{47} - 2.05\times 10^{62}u^{46} + \cdots + 1.02\times 10^{61}a + 8.43\times 10^{62},\ u^{48} - u^{47} + \cdots + 3u - 1\rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

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

$$a_2 = \begin{pmatrix} -23.2599u^{47} + 20.1725u^{46} + \cdots - 31.6691u - 82.7671 \\ -25.2314u^{47} + 14.2209u^{46} + \cdots + 3.95288u - 64.9867 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -18.5062u^{47} + 19.5774u^{46} + \cdots - 44.8752u - 78.5037 \\ -23.7412u^{47} + 14.4735u^{46} + \cdots - 1.53060u - 64.8820 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -26.4129u^{47} + 22.6599u^{46} + \cdots - 30.3151u - 107.768 \\ -4.62565u^{47} + 3.74801u^{46} + \cdots - 4.77317u - 19.1854 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -34.0857u^{47} + 12.4951u^{46} + \cdots + 61.2163u - 60.5527 \\ -23.2847u^{47} + 16.5991u^{46} + \cdots - 10.3541u - 74.7687 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -21.7873u^{47} + 18.9119u^{46} + \cdots - 25.5420u - 88.5823 \\ -4.62565u^{47} + 3.74801u^{46} + \cdots - 4.77317u - 19.1854 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 22.7255u^{47} - 19.1834u^{46} + \cdots + 16.4869u + 86.5333 \\ 14.0451u^{47} - 8.17543u^{46} + \cdots + 3.87591u + 42.3364 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -57.1122u^{47} + 43.2739u^{46} + \cdots + 12.3659u - 184.174$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5	$u^{48} + u^{47} + \cdots - 3u - 1$
c_2, c_7	$u^{48} - u^{47} + \cdots - 27u + 9$
c_3	$u^{48} - 2u^{47} + \cdots - 11u + 1$
c_4, c_8	$u^{48} + u^{47} + \cdots + 27u + 9$
c_6, c_9	$u^{48} - u^{47} + \cdots + 3u - 1$
c_{10}	$u^{48} + 2u^{47} + \cdots + 11u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5, c_6 c_9	$y^{48} - 29y^{47} + \cdots - 45y + 1$
c_2, c_4, c_7 c_8	$y^{48} - 29y^{47} + \cdots - 1053y + 81$
c_3, c_{10}	$y^{48} - 6y^{47} + \cdots - 23y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.632234 + 0.751660I$ $a = 0.218508 + 0.245850I$ $b = 0.32704 + 1.62505I$	$-0.39243 - 4.63681I$	$-1.88077 + 4.18341I$
$u = -0.632234 - 0.751660I$ $a = 0.218508 - 0.245850I$ $b = 0.32704 - 1.62505I$	$-0.39243 + 4.63681I$	$-1.88077 - 4.18341I$
$u = -0.240182 + 0.992004I$ $a = -0.427547 - 1.235530I$ $b = 0.343258 - 1.370130I$	$-7.33272 + 2.80822I$	$-7.40390 - 2.13041I$
$u = -0.240182 - 0.992004I$ $a = -0.427547 + 1.235530I$ $b = 0.343258 + 1.370130I$	$-7.33272 - 2.80822I$	$-7.40390 + 2.13041I$
$u = -0.894686 + 0.569518I$ $a = -0.127345 + 0.599296I$ $b = -0.028616 + 1.106620I$	$-0.55675 - 4.59934I$	$0. + 5.05608I$
$u = -0.894686 - 0.569518I$ $a = -0.127345 - 0.599296I$ $b = -0.028616 - 1.106620I$	$-0.55675 + 4.59934I$	$0. - 5.05608I$
$u = 1.051710 + 0.225311I$ $a = -0.738220 + 0.292695I$ $b = -0.53476 + 1.78675I$	$0.417476 + 0.732604I$	$0. + 18.1961I$
$u = 1.051710 - 0.225311I$ $a = -0.738220 - 0.292695I$ $b = -0.53476 - 1.78675I$	$0.417476 - 0.732604I$	$0. - 18.1961I$
$u = 0.812872 + 0.282184I$ $a = 0.357660 - 0.200732I$ $b = -0.596385 - 0.659961I$	$1.40575 + 0.47751I$	$6.55789 + 0.10542I$
$u = 0.812872 - 0.282184I$ $a = 0.357660 + 0.200732I$ $b = -0.596385 + 0.659961I$	$1.40575 - 0.47751I$	$6.55789 - 0.10542I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.842342 + 0.141502I$ $a = -1.170590 + 0.464125I$ $b = 1.45254 + 1.74578I$	$-0.417476 + 0.732604I$	$-0.8254 + 18.1961I$
$u = 0.842342 - 0.141502I$ $a = -1.170590 - 0.464125I$ $b = 1.45254 - 1.74578I$	$-0.417476 - 0.732604I$	$-0.8254 - 18.1961I$
$u = 0.605329 + 0.579618I$ $a = 0.772614 - 0.128076I$ $b = -0.077175 - 0.876614I$	$1.51083 + 0.54816I$	$4.17228 + 0.02806I$
$u = 0.605329 - 0.579618I$ $a = 0.772614 + 0.128076I$ $b = -0.077175 + 0.876614I$	$1.51083 - 0.54816I$	$4.17228 - 0.02806I$
$u = -1.067460 + 0.548582I$ $a = 0.489520 + 1.166660I$ $b = -0.53932 + 1.32606I$	$-1.80411 - 5.64123I$	0
$u = -1.067460 - 0.548582I$ $a = 0.489520 - 1.166660I$ $b = -0.53932 - 1.32606I$	$-1.80411 + 5.64123I$	0
$u = -0.437566 + 0.658376I$ $a = 1.41174 + 1.11025I$ $b = 0.192260 + 0.774854I$	$-3.64950 + 0.92732I$	$-3.47502 - 0.40612I$
$u = -0.437566 - 0.658376I$ $a = 1.41174 - 1.11025I$ $b = 0.192260 - 0.774854I$	$-3.64950 - 0.92732I$	$-3.47502 + 0.40612I$
$u = 1.161770 + 0.407343I$ $a = -0.604688 - 1.001630I$ $b = 0.0379439 + 0.0548756I$	$3.40248 + 7.65130I$	0
$u = 1.161770 - 0.407343I$ $a = -0.604688 + 1.001630I$ $b = 0.0379439 - 0.0548756I$	$3.40248 - 7.65130I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.766769$ $a = 2.73239$ $b = -0.792296$	-5.07611	4.92140
$u = 1.225450 + 0.357549I$ $a = 0.869607 - 0.646447I$ $b = -0.146351 - 0.816816I$	$-2.38978 + 1.27522I$	0
$u = 1.225450 - 0.357549I$ $a = 0.869607 + 0.646447I$ $b = -0.146351 + 0.816816I$	$-2.38978 - 1.27522I$	0
$u = -1.200530 + 0.437380I$ $a = -0.758374 - 0.772570I$ $b = 1.35305 - 1.50450I$	$4.19769 - 8.53710I$	0
$u = -1.200530 - 0.437380I$ $a = -0.758374 + 0.772570I$ $b = 1.35305 + 1.50450I$	$4.19769 + 8.53710I$	0
$u = -1.328340 + 0.127377I$ $a = -0.250127 + 0.722817I$ $b = -0.150574 + 0.021826I$	$7.33272 - 2.80822I$	0
$u = -1.328340 - 0.127377I$ $a = -0.250127 - 0.722817I$ $b = -0.150574 - 0.021826I$	$7.33272 + 2.80822I$	0
$u = -0.541920 + 0.370293I$ $a = 1.259690 - 0.208818I$ $b = -0.036236 - 0.338358I$	$-1.51083 + 0.54816I$	$-4.17228 + 0.02806I$
$u = -0.541920 - 0.370293I$ $a = 1.259690 + 0.208818I$ $b = -0.036236 + 0.338358I$	$-1.51083 - 0.54816I$	$-4.17228 - 0.02806I$
$u = 0.227376 + 0.608707I$ $a = -0.33925 - 1.59654I$ $b = -0.52148 - 1.52173I$	$0.55675 + 4.59934I$	$0.60868 - 5.05608I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.227376 - 0.608707I$ $a = -0.33925 + 1.59654I$ $b = -0.52148 + 1.52173I$	$0.55675 - 4.59934I$	$0.60868 + 5.05608I$
$u = -1.296800 + 0.481262I$ $a = 0.740652 + 0.550584I$ $b = -1.61489 + 0.94291I$	$2.38978 - 1.27522I$	0
$u = -1.296800 - 0.481262I$ $a = 0.740652 - 0.550584I$ $b = -1.61489 - 0.94291I$	$2.38978 + 1.27522I$	0
$u = -1.248360 + 0.595799I$ $a = -0.647079 - 0.659192I$ $b = 0.40624 - 1.67377I$	$-4.19769 - 8.53710I$	0
$u = -1.248360 - 0.595799I$ $a = -0.647079 + 0.659192I$ $b = 0.40624 + 1.67377I$	$-4.19769 + 8.53710I$	0
$u = 1.34869 + 0.44365I$ $a = 0.437659 + 0.344193I$ $b = -0.490315 - 0.307215I$	$3.64950 + 0.92732I$	0
$u = 1.34869 - 0.44365I$ $a = 0.437659 - 0.344193I$ $b = -0.490315 + 0.307215I$	$3.64950 - 0.92732I$	0
$u = 0.29450 + 1.40998I$ $a = -0.441729 + 0.731698I$ $b = -0.27015 + 1.70315I$	$-3.40248 - 7.65130I$	0
$u = 0.29450 - 1.40998I$ $a = -0.441729 - 0.731698I$ $b = -0.27015 - 1.70315I$	$-3.40248 + 7.65130I$	0
$u = 1.16255 + 0.97682I$ $a = 0.305811 - 0.728832I$ $b = -1.23753 - 1.73103I$	$1.80411 + 5.64123I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.16255 - 0.97682I$ $a = 0.305811 + 0.728832I$ $b = -1.23753 + 1.73103I$	$1.80411 - 5.64123I$	0
$u = 1.34409 + 0.72046I$ $a = -0.553617 + 0.832772I$ $b = 1.16282 + 1.60497I$	$14.9002I$	0
$u = 1.34409 - 0.72046I$ $a = -0.553617 - 0.832772I$ $b = 1.16282 - 1.60497I$	$-14.9002I$	0
$u = -0.347375 + 0.062244I$ $a = 2.12622 + 1.19331I$ $b = 0.296449 + 0.612534I$	$-1.40575 - 0.47751I$	$-6.55789 - 0.10542I$
$u = -0.347375 - 0.062244I$ $a = 2.12622 - 1.19331I$ $b = 0.296449 - 0.612534I$	$-1.40575 + 0.47751I$	$-6.55789 + 0.10542I$
$u = 0.322944 + 0.008808I$ $a = 2.01970 + 2.27244I$ $b = -0.52460 + 1.37673I$	$0.39243 - 4.63681I$	$1.88077 + 4.18341I$
$u = 0.322944 - 0.008808I$ $a = 2.01970 - 2.27244I$ $b = -0.52460 - 1.37673I$	$0.39243 + 4.63681I$	$1.88077 - 4.18341I$
$u = -2.09511$ $a = 0.365981$ $b = -0.814169$	5.07611	0

II. $\boldsymbol{I_2^u = \langle u^3 + 2u^2 + b - u - 1,\ -2u^5 - 3u^4 + 4u^3 + 5u^2 + a - u - 5,\ u^6 + 2u^5 - u^4 - 3u^3 - u^2 + 2u + 1\rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 2u^5 + 3u^4 - 4u^3 - 5u^2 + u + 5 \\ -u^3 - 2u^2 + u + 1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 3u^5 + 5u^4 - 5u^3 - 7u^2 + u + 6 \\ u^5 + u^4 - 3u^3 - 3u^2 + 2u + 2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -5u^5 - 8u^4 + 8u^3 + 11u^2 - 9 \\ -u^5 - 2u^4 + u^3 + 2u^2 - 1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -7u^5 - 10u^4 + 13u^3 + 14u^2 - u - 13 \\ -u^5 - u^4 + 2u^3 - 1 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -4u^5 - 6u^4 + 7u^3 + 9u^2 - 8 \\ -u^5 - 2u^4 + u^3 + 2u^2 - 1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 3u^5 + 4u^4 - 6u^3 - 6u^2 + u + 7 \\ -u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -8u^5 - 8u^4 + 16u^3 + 8u^2 - 12$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_9	$u^6 + 2u^5 - u^4 - 3u^3 - u^2 + 2u + 1$
c_2, c_8	$u^6 - u^4 + u^3 - u^2 + 1$
c_3	$u^6 + 3u^5 + 3u^4 + u^3 - 4u^2 - 4u - 1$
c_4, c_7	$u^6 - u^4 - u^3 - u^2 + 1$
c_5, c_6	$u^6 - 2u^5 - u^4 + 3u^3 - u^2 - 2u + 1$
c_{10}	$u^6 - 3u^5 + 3u^4 - u^3 - 4u^2 + 4u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5, c_6 c_9	$y^6 - 6y^5 + 11y^4 - 13y^3 + 11y^2 - 6y + 1$
c_2, c_4, c_7 c_8	$y^6 - 2y^5 - y^4 + 3y^3 - y^2 - 2y + 1$
c_3, c_{10}	$y^6 - 3y^5 - 5y^4 - 3y^3 + 18y^2 - 8y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.967716 + 0.252043I$ $a = 0.872949 - 0.487811I$ $b = -0.50000 - 1.41566I$	$1.00626I$	$-60.10 + 0.512355I$
$u = 0.967716 - 0.252043I$ $a = 0.872949 + 0.487811I$ $b = -0.50000 + 1.41566I$	$-1.00626I$	$-60.10 - 0.512355I$
$u = -0.731299 + 0.682057I$ $a = 0.069597 + 0.997575I$ $b = -0.50000 + 1.90021I$	$-5.76499I$	$0. + 10.15340I$
$u = -0.731299 - 0.682057I$ $a = 0.069597 - 0.997575I$ $b = -0.50000 - 1.90021I$	$5.76499I$	$0. - 10.15340I$
$u = -0.509281$ $a = 3.85554$ $b = 0.104076$	-5.56615	-12.3030
$u = -1.96355$ $a = 0.259367$ $b = -1.10408$	5.56615	12.3030

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^6+2u^5-u^4-3u^3-u^2+2u+1)(u^{48}+u^{47}+\cdots-3u-1)$
c_2	$(u^6-u^4+u^3-u^2+1)(u^{48}-u^{47}+\cdots-27u+9)$
c_3	$(u^6+3u^5+3u^4+u^3-4u^2-4u-1)(u^{48}-2u^{47}+\cdots-11u+1)$
c_4	$(u^6-u^4-u^3-u^2+1)(u^{48}+u^{47}+\cdots+27u+9)$
c_5	$(u^6-2u^5-u^4+3u^3-u^2-2u+1)(u^{48}+u^{47}+\cdots-3u-1)$
c_6	$(u^6-2u^5-u^4+3u^3-u^2-2u+1)(u^{48}-u^{47}+\cdots+3u-1)$
c_7	$(u^6-u^4-u^3-u^2+1)(u^{48}-u^{47}+\cdots-27u+9)$
c_8	$(u^6-u^4+u^3-u^2+1)(u^{48}+u^{47}+\cdots+27u+9)$
c_9	$(u^6+2u^5-u^4-3u^3-u^2+2u+1)(u^{48}-u^{47}+\cdots+3u-1)$
c_{10}	$(u^6-3u^5+3u^4-u^3-4u^2+4u-1)(u^{48}+2u^{47}+\cdots+11u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_5, c_6 c_9	$(y^6 - 6y^5 + \cdots - 6y + 1)(y^{48} - 29y^{47} + \cdots - 45y + 1)$
c_2, c_4, c_7 c_8	$(y^6 - 2y^5 - y^4 + 3y^3 - y^2 - 2y + 1)(y^{48} - 29y^{47} + \cdots - 1053y + 81)$
c_3, c_{10}	$(y^6 - 3y^5 + \cdots - 8y + 1)(y^{48} - 6y^{47} + \cdots - 23y + 1)$