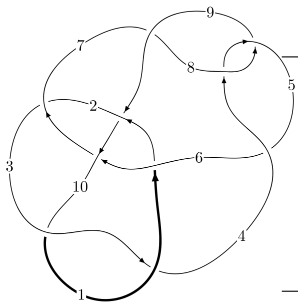
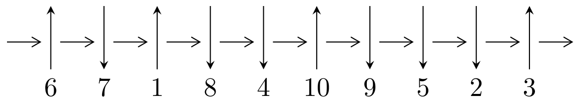
10_{87} $(K10a_{39})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & 2225248116121u^{40} - 2393989479567u^{39} + \cdots + 102973769291134b - 6012630756121, \\
& - 31071718506119u^{40} + 39367206545589u^{39} + \cdots + 5148688464567a - 44602733573152, \\
& u^{41} - 2u^{40} + \cdots - u - 1\rangle \\
I_2^u = \langle & b - 1,\ a - 1,\ u - 1\rangle
\end{aligned}$$

* 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.

$\boldsymbol{I_1^u = \langle 2.23\times10^{12}u^{40} - 2.39\times10^{12}u^{39} + \cdots + 1.03\times10^{13}b - 6.01\times10^{12},\ -3.11\times10^{13}u^{40} + 3.94\times10^{13}u^{39} + \cdots + 5.15\times10^{12}a - 4.46\times10^{13},\ u^{41} - 2u^{40} + \cdots - u - 1\rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u^2+1 \\ u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 6.03488u^{40} - 7.64606u^{39} + \cdots + 20.1260u + 8.66293 \\ -0.216099u^{40} + 0.232485u^{39} + \cdots - 1.20415u + 0.583899 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u \\ -u^3+u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 5.64438u^{40} - 7.18325u^{39} + \cdots + 18.2918u + 8.93217 \\ -0.135606u^{40} + 0.0700585u^{39} + \cdots - 1.18339u + 0.664403 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} u^3 \\ u^5 - u^3 + u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 4.44062u^{40} - 5.31684u^{39} + \cdots + 13.7767u + 7.07457 \\ -1.46774u^{40} + 1.54335u^{39} + \cdots - 6.10178u - 1.46782 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 1.00290u^{40} - 1.84189u^{39} + \cdots + 5.12751u + 1.12239 \\ -0.839015u^{40} + 1.67515u^{39} + \cdots - 0.958478u - 0.838993 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= \frac{23238917313784}{1716229488189}u^{40} - \frac{10481023528134}{572076496063}u^{39} + \cdots + \frac{28692506559598}{572076496063}u + \frac{39302820789020}{1716229488189}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{41} + 8u^{39} + \cdots + 687u + 229$
c_2	$u^{41} + 2u^{40} + \cdots - 97u + 29$
c_3, c_{10}	$u^{41} + 2u^{40} + \cdots + 9u + 1$
c_4, c_8	$u^{41} + 2u^{40} + \cdots - u + 1$
c_5, c_7	$u^{41} + 12u^{40} + \cdots + 5u + 1$
c_6	$u^{41} + 4u^{40} + \cdots + u + 1$
c_9	$u^{41} - 7u^{40} + \cdots + 6u - 2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{41} + 16y^{40} + \cdots + 1271637y - 52441$
c_2	$y^{41} + 48y^{40} + \cdots - 7063y - 841$
c_3, c_{10}	$y^{41} - 32y^{40} + \cdots + 141y - 1$
c_4, c_8	$y^{41} - 12y^{40} + \cdots + 5y - 1$
c_5, c_7	$y^{41} + 36y^{40} + \cdots + 5y - 1$
c_6	$y^{41} - 8y^{40} + \cdots + 5y - 1$
c_9	$y^{41} + 9y^{40} + \cdots - 16y - 4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.903206 + 0.396002I$ $a = 1.211920 + 0.667053I$ $b = -0.408078 + 0.420450I$	$-1.94008 - 1.34771I$	$-7.61480 + 3.42502I$
$u = 0.903206 - 0.396002I$ $a = 1.211920 - 0.667053I$ $b = -0.408078 - 0.420450I$	$-1.94008 + 1.34771I$	$-7.61480 - 3.42502I$
$u = -0.952455 + 0.222261I$ $a = -0.211328 + 0.932061I$ $b = -0.096162 + 0.914015I$	$-2.78156 + 3.84619I$	$-6.97849 - 6.75687I$
$u = -0.952455 - 0.222261I$ $a = -0.211328 - 0.932061I$ $b = -0.096162 - 0.914015I$	$-2.78156 - 3.84619I$	$-6.97849 + 6.75687I$
$u = -0.821825 + 0.760247I$ $a = 0.450451 - 0.306050I$ $b = 0.335334 - 0.324976I$	$3.49362 + 1.78935I$	$0.87448 - 4.34492I$
$u = -0.821825 - 0.760247I$ $a = 0.450451 + 0.306050I$ $b = 0.335334 + 0.324976I$	$3.49362 - 1.78935I$	$0.87448 + 4.34492I$
$u = 0.866850$ $a = 0.639506$ $b = -0.0835204$	-1.43130	-6.87200
$u = 0.798878 + 0.810698I$ $a = 0.377223 - 0.719870I$ $b = 0.265202 + 1.192170I$	$3.76974 + 2.25598I$	$1.50138 - 3.41744I$
$u = 0.798878 - 0.810698I$ $a = 0.377223 + 0.719870I$ $b = 0.265202 - 1.192170I$	$3.76974 - 2.25598I$	$1.50138 + 3.41744I$
$u = -1.102330 + 0.334587I$ $a = 0.338270 - 1.284530I$ $b = -1.253450 - 0.430907I$	$0.85372 + 8.63849I$	$-1.84811 - 8.19635I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.102330 - 0.334587I$ $a = 0.338270 + 1.284530I$ $b = -1.253450 + 0.430907I$	$0.85372 - 8.63849I$	$-1.84811 + 8.19635I$
$u = -0.058442 + 0.843545I$ $a = 1.57943 - 0.15589I$ $b = -1.284700 + 0.271028I$	$4.36449 - 4.62926I$	$4.68493 + 4.91932I$
$u = -0.058442 - 0.843545I$ $a = 1.57943 + 0.15589I$ $b = -1.284700 - 0.271028I$	$4.36449 + 4.62926I$	$4.68493 - 4.91932I$
$u = -0.883648 + 0.770325I$ $a = -3.62989 + 1.11022I$ $b = 1.134150 + 0.025263I$	$5.18095 + 2.90757I$	$-15.8800 + 0.I$
$u = -0.883648 - 0.770325I$ $a = -3.62989 - 1.11022I$ $b = 1.134150 - 0.025263I$	$5.18095 - 2.90757I$	$-15.8800 + 0.I$
$u = 0.760286 + 0.907829I$ $a = 1.73221 + 0.34788I$ $b = -1.45266 - 0.46932I$	$9.17940 + 7.97252I$	$3.27060 - 3.71618I$
$u = 0.760286 - 0.907829I$ $a = 1.73221 - 0.34788I$ $b = -1.45266 + 0.46932I$	$9.17940 - 7.97252I$	$3.27060 + 3.71618I$
$u = 0.866672 + 0.809557I$ $a = -1.56395 - 1.02120I$ $b = 1.60494 + 0.57469I$	$7.77351 - 0.87153I$	$6.95024 - 0.30904I$
$u = 0.866672 - 0.809557I$ $a = -1.56395 + 1.02120I$ $b = 1.60494 - 0.57469I$	$7.77351 + 0.87153I$	$6.95024 + 0.30904I$
$u = -0.929908 + 0.739442I$ $a = 0.037024 + 0.508793I$ $b = 0.197100 + 0.379729I$	$3.15987 + 3.90045I$	$-0.31532 - 1.57295I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.929908 - 0.739442I$ $a = 0.037024 - 0.508793I$ $b = 0.197100 - 0.379729I$	$3.15987 - 3.90045I$	$-0.31532 + 1.57295I$
$u = -0.744475 + 0.942248I$ $a = 1.62214 - 0.18187I$ $b = -1.310630 + 0.070763I$	$8.52020 + 0.56768I$	$6.81847 - 0.32338I$
$u = -0.744475 - 0.942248I$ $a = 1.62214 + 0.18187I$ $b = -1.310630 - 0.070763I$	$8.52020 - 0.56768I$	$6.81847 + 0.32338I$
$u = -0.739440 + 0.286658I$ $a = 0.11659 + 1.68574I$ $b = 1.073000 + 0.545709I$	$1.56831 + 2.54987I$	$1.57226 - 7.77175I$
$u = -0.739440 - 0.286658I$ $a = 0.11659 - 1.68574I$ $b = 1.073000 - 0.545709I$	$1.56831 - 2.54987I$	$1.57226 + 7.77175I$
$u = 0.913744 + 0.795988I$ $a = -2.19807 - 1.07996I$ $b = 1.55855 - 0.65970I$	$7.62795 - 5.14257I$	$6.43416 + 5.95767I$
$u = 0.913744 - 0.795988I$ $a = -2.19807 + 1.07996I$ $b = 1.55855 + 0.65970I$	$7.62795 + 5.14257I$	$6.43416 - 5.95767I$
$u = 1.191150 + 0.227807I$ $a = -0.076211 + 0.412771I$ $b = -1.116560 - 0.153454I$	$0.067811 + 0.953358I$	$2.02910 - 7.42558I$
$u = 1.191150 - 0.227807I$ $a = -0.076211 - 0.412771I$ $b = -1.116560 + 0.153454I$	$0.067811 - 0.953358I$	$2.02910 + 7.42558I$
$u = 0.960612 + 0.767884I$ $a = -1.113770 + 0.253317I$ $b = 0.163245 - 1.244780I$	$3.27367 - 8.18385I$	$0. + 8.35233I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.960612 - 0.767884I$ $a = -1.113770 - 0.253317I$ $b = 0.163245 + 1.244780I$	$3.27367 + 8.18385I$	$0. - 8.35233I$
$u = 0.748657 + 0.093307I$ $a = 0.47886 - 4.75552I$ $b = 0.938830 - 0.044980I$	$0.431185 - 0.284475I$	$13.1815 - 15.1990I$
$u = 0.748657 - 0.093307I$ $a = 0.47886 + 4.75552I$ $b = 0.938830 + 0.044980I$	$0.431185 + 0.284475I$	$13.1815 + 15.1990I$
$u = 1.022750 + 0.797628I$ $a = 1.90383 + 1.42431I$ $b = -1.44670 + 0.51890I$	$8.3544 - 14.2736I$	$0. + 8.33140I$
$u = 1.022750 - 0.797628I$ $a = 1.90383 - 1.42431I$ $b = -1.44670 - 0.51890I$	$8.3544 + 14.2736I$	$0. - 8.33140I$
$u = -1.045230 + 0.812235I$ $a = 1.41367 - 1.18781I$ $b = -1.277530 - 0.155370I$	$7.57848 + 5.87702I$	$0. - 5.65225I$
$u = -1.045230 - 0.812235I$ $a = 1.41367 + 1.18781I$ $b = -1.277530 + 0.155370I$	$7.57848 - 5.87702I$	$0. + 5.65225I$
$u = 0.039502 + 0.458105I$ $a = 0.880104 + 0.384951I$ $b = 0.142705 - 0.550416I$	$0.05414 - 1.50218I$	$0.18723 + 4.24532I$
$u = 0.039502 - 0.458105I$ $a = 0.880104 - 0.384951I$ $b = 0.142705 + 0.550416I$	$0.05414 + 1.50218I$	$0.18723 - 4.24532I$
$u = -0.361128 + 0.264161I$ $a = -0.168271 + 0.663616I$ $b = 1.275180 - 0.127224I$	$2.56290 - 0.10225I$	$4.38337 - 2.22967I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.361128 - 0.264161I$ $a = -0.168271 - 0.663616I$ $b = \quad 1.275180 + 0.127224I$	$2.56290 + 0.10225I$	$4.38337 + 2.22967I$

II. $I_2^u = \langle b-1,\ a-1,\ u-1 \rangle$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 2 \\ 1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_3 c_4, c_5, c_6 c_7, c_8, c_{10}	$y-1$
c_9	y

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u		$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u =$	1.00000		
$a =$	1.00000	0	0
$b =$	1.00000		

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u-1)(u^{41}+8u^{39}+\cdots+687u+229)$
c_2	$(u-1)(u^{41}+2u^{40}+\cdots-97u+29)$
c_3	$(u-1)(u^{41}+2u^{40}+\cdots+9u+1)$
c_4	$(u-1)(u^{41}+2u^{40}+\cdots-u+1)$
c_5	$(u+1)(u^{41}+12u^{40}+\cdots+5u+1)$
c_6	$(u-1)(u^{41}+4u^{40}+\cdots+u+1)$
c_7	$(u-1)(u^{41}+12u^{40}+\cdots+5u+1)$
c_8	$(u+1)(u^{41}+2u^{40}+\cdots-u+1)$
c_9	$u(u^{41}-7u^{40}+\cdots+6u-2)$
c_{10}	$(u+1)(u^{41}+2u^{40}+\cdots+9u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y-1)(y^{41}+16y^{40}+\cdots+1271637y-52441)$
c_2	$(y-1)(y^{41}+48y^{40}+\cdots-7063y-841)$
c_3, c_{10}	$(y-1)(y^{41}-32y^{40}+\cdots+141y-1)$
c_4, c_8	$(y-1)(y^{41}-12y^{40}+\cdots+5y-1)$
c_5, c_7	$(y-1)(y^{41}+36y^{40}+\cdots+5y-1)$
c_6	$(y-1)(y^{41}-8y^{40}+\cdots+5y-1)$
c_9	$y(y^{41}+9y^{40}+\cdots-16y-4)$