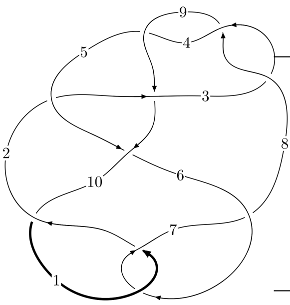
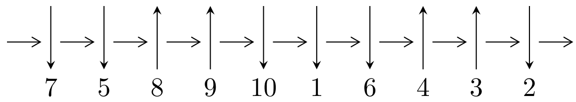
10_{32} $(K10a_{55})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^{33} - 2u^{32} + \cdots + u^2 + 1 \rangle$$
$$I_2^u = \langle u + 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 34 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. $I_1^u = \langle u^{33} - 2u^{32} + \cdots + u^2 + 1 \rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u^3 + 2u \\ -u^3 + u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u^{10} + 5u^8 - 8u^6 + 3u^4 + u^2 + 1 \\ -u^{10} + 4u^8 - 5u^6 + 2u^4 - u^2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u^6 - 3u^4 + 2u^2 + 1 \\ -u^8 + 4u^6 - 4u^4 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} u^{21} - 10u^{19} + \cdots + 2u^3 + u \\ u^{21} - 9u^{19} + 33u^{17} - 62u^{15} + 62u^{13} - 33u^{11} + 13u^9 - 6u^7 + u^5 - u^3 + u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^{17} - 8u^{15} + 25u^{13} - 36u^{11} + 19u^9 + 4u^7 - 2u^5 - 4u^3 + u \\ -u^{19} + 9u^{17} - 32u^{15} + 55u^{13} - 43u^{11} + 9u^9 + 4u^5 - u^3 + u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= 4u^{31} - 56u^{29} - 4u^{28} + 344u^{27} + 52u^{26} - 1204u^{25} - 292u^{24} + 2600u^{23} + 912u^{22} - 3476u^{21} - 1692u^{20} + 2672u^{19} + 1824u^{18} - 912u^{17} - 1016u^{16} + 40u^{15} + 276u^{14} - 156u^{13} - 260u^{12} + 144u^{11} + 276u^{10} + 24u^9 - 48u^8 - 16u^7 - 12u^6 + 16u^5 - 8u^4 - 20u^3 - 8u^2 - 4u - 6$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_6	$u^{33} - 2u^{32} + \cdots - 2u + 1$
c_2	$u^{33} - 6u^{32} + \cdots + 128u - 23$
c_3, c_4, c_8	$u^{33} - 2u^{32} + \cdots + u^2 + 1$
c_5	$u^{33} + u^{31} + \cdots - 8u + 1$
c_7, c_{10}	$u^{33} + 10u^{32} + \cdots - 2u + 1$
c_9	$u^{33} + 3u^{32} + \cdots + 32u + 7$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_6	$y^{33} - 10y^{32} + \cdots - 2y - 1$
c_2	$y^{33} + 14y^{32} + \cdots - 2062y - 529$
c_3, c_4, c_8	$y^{33} - 30y^{32} + \cdots - 2y - 1$
c_5	$y^{33} + 2y^{32} + \cdots - 2y - 1$
c_7, c_{10}	$y^{33} + 26y^{32} + \cdots + 6y - 1$
c_9	$y^{33} - 3y^{32} + \cdots + 394y - 49$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.145930 + 0.199234I$	$2.02163 - 5.40417I$	$-1.16809 + 6.21521I$
$u = -1.145930 - 0.199234I$	$2.02163 + 5.40417I$	$-1.16809 - 6.21521I$
$u = \quad 1.226990 + 0.119877I$	$2.93624 + 0.57729I$	$-61.088687 + 0.10I$
$u = \quad 1.226990 - 0.119877I$	$2.93624 - 0.57729I$	$-61.088687 + 0.10I$
$u = -0.313132 + 0.699748I$	$1.61043 - 8.54919I$	$-1.81653 + 8.15424I$
$u = -0.313132 - 0.699748I$	$1.61043 + 8.54919I$	$-1.81653 - 8.15424I$
$u = \quad 0.325114 + 0.672913I$	$2.49948 + 2.85888I$	$0.03469 - 3.31371I$
$u = \quad 0.325114 - 0.672913I$	$2.49948 - 2.85888I$	$0.03469 + 3.31371I$
$u = -0.592603 + 0.413344I$	$2.74796 + 4.66940I$	$0.86326 - 2.61989I$
$u = -0.592603 - 0.413344I$	$2.74796 - 4.66940I$	$0.86326 + 2.61989I$
$u = -0.225806 + 0.667717I$	$-3.60419 - 3.13953I$	$-8.34254 + 5.36114I$
$u = -0.225806 - 0.667717I$	$-3.60419 + 3.13953I$	$-8.34254 - 5.36114I$
$u = \quad 0.529781 + 0.441659I$	$3.40197 + 0.91195I$	$2.34870 - 3.13722I$
$u = \quad 0.529781 - 0.441659I$	$3.40197 - 0.91195I$	$2.34870 + 3.13722I$
$u = \quad 1.323560 + 0.186117I$	$3.02759 + 0.73587I$	$-0.673126 + 0.769843I$
$u = \quad 1.323560 - 0.186117I$	$3.02759 - 0.73587I$	$-0.673126 - 0.769843I$
$u = -0.065742 + 0.645142I$	$-1.19428 + 2.21654I$	$-6.16344 - 2.48417I$
$u = -0.065742 - 0.645142I$	$-1.19428 - 2.21654I$	$-6.16344 + 2.48417I$
$u = -0.596679$	-1.73897	-4.71290
$u = \quad 1.387740 + 0.260179I$	$1.53217 + 6.51294I$	$-2.89383 - 5.98872I$
$u = \quad 1.387740 - 0.260179I$	$1.53217 - 6.51294I$	$-2.89383 + 5.98872I$
$u = -1.396540 + 0.216616I$	$5.26725 - 4.07711I$	$4.72201 + 3.88410I$
$u = -1.396540 - 0.216616I$	$5.26725 + 4.07711I$	$4.72201 - 3.88410I$
$u = \quad 0.245019 + 0.527971I$	$0.007405 + 1.282000I$	$-0.00329 - 5.16805I$
$u = \quad 0.245019 - 0.527971I$	$0.007405 - 1.282000I$	$-0.00329 + 5.16805I$
$u = -1.42908 + 0.26025I$	$8.11565 - 6.26770I$	$4.18982 + 3.24511I$
$u = -1.42908 - 0.26025I$	$8.11565 + 6.26770I$	$4.18982 - 3.24511I$
$u = \quad 1.44655 + 0.13460I$	$9.14238 - 2.78863I$	$4.90822 + 2.57820I$
$u = \quad 1.44655 - 0.13460I$	$9.14238 + 2.78863I$	$4.90822 - 2.57820I$
$u = \quad 1.42746 + 0.27209I$	$7.18048 + 12.09090I$	$2.43573 - 8.11579I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad 1.42746 - 0.27209I$	$7.18048 - 12.09090I$	$2.43573 + 8.11579I$
$u = -1.44503 + 0.15402I$	$9.63768 - 3.04389I$	$5.82618 + 2.90426I$
$u = -1.44503 - 0.15402I$	$9.63768 + 3.04389I$	$5.82618 - 2.90426I$

II. $I_2^u = \langle u+1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -6$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_3, c_4 c_5, c_6, c_7 c_8, c_{10}	$u + 1$
c_2	$u - 1$
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
$u = -1.00000$	-1.64493	-6.00000

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_6	$(u+1)(u^{33} - 2u^{32} + \cdots - 2u + 1)$
c_2	$(u-1)(u^{33} - 6u^{32} + \cdots + 128u - 23)$
c_3, c_4, c_8	$(u+1)(u^{33} - 2u^{32} + \cdots + u^2 + 1)$
c_5	$(u+1)(u^{33} + u^{31} + \cdots - 8u + 1)$
c_7, c_{10}	$(u+1)(u^{33} + 10u^{32} + \cdots - 2u + 1)$
c_9	$u(u^{33} + 3u^{32} + \cdots + 32u + 7)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_6	$(y-1)(y^{33} - 10y^{32} + \cdots - 2y - 1)$
c_2	$(y-1)(y^{33} + 14y^{32} + \cdots - 2062y - 529)$
c_3, c_4, c_8	$(y-1)(y^{33} - 30y^{32} + \cdots - 2y - 1)$
c_5	$(y-1)(y^{33} + 2y^{32} + \cdots - 2y - 1)$
c_7, c_{10}	$(y-1)(y^{33} + 26y^{32} + \cdots + 6y - 1)$
c_9	$y(y^{33} - 3y^{32} + \cdots + 394y - 49)$