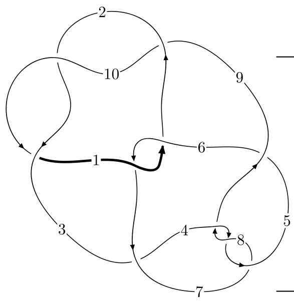
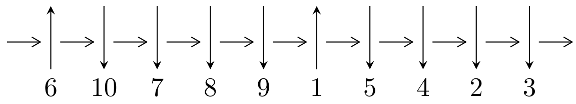
10_{50} $(K10a_{82})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^{28} - 2u^{27} + \cdots + b + 1,\ 2u^{28} - 2u^{27} + \cdots + a + 2,\ u^{29} - 2u^{28} + \cdots + u - 1\rangle$$
$$I_2^u = \langle b,\ u^2 + a + 1,\ u^3 + u^2 + 2u + 1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 32 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.

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$$\boldsymbol{I_1^u = \langle u^{28} - 2u^{27} + \cdots + b + 1,\ 2u^{28} - 2u^{27} + \cdots + a + 2,\ u^{29} - 2u^{28} + \cdots + u - 1\rangle}$$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -2u^{28} + 2u^{27} + \cdots - 6u - 2 \\ -u^{28} + 2u^{27} + \cdots + u - 1 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u^3 + 2u \\ u^3 + u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u^5 - 2u^3 - u \\ -u^7 - 3u^5 - 2u^3 + u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -u^{16} - 7u^{14} + \cdots - 6u - 1 \\ u^{28} - 2u^{27} + \cdots - u^2 + 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u^{28} + u^{27} + \cdots - 5u - 1 \\ u^{17} + 7u^{15} + \cdots + 6u^2 + u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= u^{28} - 2u^{27} + 17u^{26} - 28u^{25} + 121u^{24} - 169u^{23} + 476u^{22} - 572u^{21} + 1124u^{20} - 1170u^{19} + 1569u^{18} - 1418u^{17} + 1069u^{16} - 834u^{15} - 98u^{14} + 112u^{13} - 636u^{12} + 544u^{11} - 270u^{10} + 426u^9 - 12u^8 + 183u^7 - 90u^6 - 34u^5 - 38u^4 - 76u^3 + 29u^2 + 2u - 3$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_6	$u^{29} + u^{28} + \cdots - 4u - 8$
c_2, c_9, c_{10}	$u^{29} - 4u^{28} + \cdots + 2u - 1$
c_3, c_5	$u^{29} + 2u^{28} + \cdots - 15u - 9$
c_4, c_7, c_8	$u^{29} - 2u^{28} + \cdots + u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_6	$y^{29} + 21y^{28} + \cdots + 144y - 64$
c_2, c_9, c_{10}	$y^{29} - 30y^{28} + \cdots + 18y - 1$
c_3, c_5	$y^{29} - 24y^{28} + \cdots + 621y - 81$
c_4, c_7, c_8	$y^{29} + 24y^{28} + \cdots + 13y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.872970 + 0.113870I$ $a = 0.23209 + 2.29662I$ $b = -0.56484 + 1.49174I$	$-12.27840 - 6.66801I$	$-13.30046 + 3.89200I$
$u = 0.872970 - 0.113870I$ $a = 0.23209 - 2.29662I$ $b = -0.56484 - 1.49174I$	$-12.27840 + 6.66801I$	$-13.30046 - 3.89200I$
$u = -0.824312$ $a = -1.01744$ $b = -1.30242$	-7.43008	-12.5870
$u = 0.814174 + 0.046599I$ $a = -0.17300 - 2.55555I$ $b = 0.215027 - 1.248980I$	$-5.26114 - 2.70743I$	$-11.83350 + 3.32702I$
$u = 0.814174 - 0.046599I$ $a = -0.17300 + 2.55555I$ $b = 0.215027 + 1.248980I$	$-5.26114 + 2.70743I$	$-11.83350 - 3.32702I$
$u = 0.050561 + 1.224810I$ $a = 1.179120 - 0.735696I$ $b = -0.603790 - 0.612719I$	$1.43725 - 1.10103I$	$-6.03106 - 0.28755I$
$u = 0.050561 - 1.224810I$ $a = 1.179120 + 0.735696I$ $b = -0.603790 + 0.612719I$	$1.43725 + 1.10103I$	$-6.03106 + 0.28755I$
$u = 0.438893 + 1.153290I$ $a = 0.614951 + 0.762748I$ $b = 0.45548 + 1.52023I$	$-9.09072 + 1.97634I$	$-10.56391 - 0.15391I$
$u = 0.438893 - 1.153290I$ $a = 0.614951 - 0.762748I$ $b = 0.45548 - 1.52023I$	$-9.09072 - 1.97634I$	$-10.56391 + 0.15391I$
$u = -0.566873 + 0.506506I$ $a = -0.914731 + 0.813821I$ $b = 0.112616 + 1.303260I$	$-6.34917 + 2.02688I$	$-11.64196 - 3.46616I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.566873-0.506506I$ $a=-0.914731-0.813821I$ $b=\ \ 0.112616-1.303260I$	$-6.34917-2.02688I$	$-11.64196+3.46616I$
$u=\ \ 0.357598+1.229040I$ $a=-0.75023-1.33832I$ $b=-0.063501-1.233240I$	$-1.62082-1.51334I$	$-8.49380+0.41799I$
$u=\ \ 0.357598-1.229040I$ $a=-0.75023+1.33832I$ $b=-0.063501+1.233240I$	$-1.62082+1.51334I$	$-8.49380-0.41799I$
$u=-0.255230+1.288030I$ $a=\ \ 0.111769-0.476267I$ $b=-0.607413+0.112242I$	$2.53302+3.25312I$	$-0.46847-3.58405I$
$u=-0.255230-1.288030I$ $a=\ \ 0.111769+0.476267I$ $b=-0.607413-0.112242I$	$2.53302-3.25312I$	$-0.46847+3.58405I$
$u=-0.075468+1.316000I$ $a=-0.969152+0.088875I$ $b=\ \ 0.538894+0.689414I$	$4.46963+2.10537I$	$-0.57633-3.98592I$
$u=-0.075468-1.316000I$ $a=-0.969152-0.088875I$ $b=\ \ 0.538894-0.689414I$	$4.46963-2.10537I$	$-0.57633+3.98592I$
$u=-0.369778+1.269420I$ $a=-0.182052+0.874747I$ $b=\ \ 1.298970-0.143296I$	$-3.48935+4.29283I$	$-8.53955-3.19264I$
$u=-0.369778-1.269420I$ $a=-0.182052-0.874747I$ $b=\ \ 1.298970+0.143296I$	$-3.48935-4.29283I$	$-8.53955+3.19264I$
$u=\ \ 0.361886+1.302780I$ $a=\ \ 1.27373+1.39712I$ $b=-0.338315+1.255880I$	$-1.04610-6.94187I$	$-7.09973+6.05967I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.361886 - 1.302780I$ $a = 1.27373 - 1.39712I$ $b = -0.338315 - 1.255880I$	$-1.04610 + 6.94187I$	$-7.09973 - 6.05967I$
$u = -0.645651$ $a = 0.563691$ $b = 0.525371$	-1.50367	-5.88400
$u = 0.389029 + 1.350370I$ $a = -1.50604 - 1.16997I$ $b = 0.63881 - 1.44580I$	$-7.67865 - 11.19890I$	$-9.19156 + 6.17598I$
$u = 0.389029 - 1.350370I$ $a = -1.50604 + 1.16997I$ $b = 0.63881 + 1.44580I$	$-7.67865 + 11.19890I$	$-9.19156 - 6.17598I$
$u = -0.14677 + 1.42338I$ $a = 0.845011 + 0.480671I$ $b = -0.257766 - 1.113060I$	$-0.14603 + 4.37313I$	$-7.64888 - 4.01970I$
$u = -0.14677 - 1.42338I$ $a = 0.845011 - 0.480671I$ $b = -0.257766 + 1.113060I$	$-0.14603 - 4.37313I$	$-7.64888 + 4.01970I$
$u = -0.274649 + 0.285133I$ $a = 0.844421 - 1.049180I$ $b = -0.175226 - 0.644435I$	$-0.389560 + 0.938777I$	$-6.80996 - 7.32576I$
$u = -0.274649 - 0.285133I$ $a = 0.844421 + 1.049180I$ $b = -0.175226 + 0.644435I$	$-0.389560 - 0.938777I$	$-6.80996 + 7.32576I$
$u = 0.277276$ $a = -2.75803$ $b = 0.479164$	-2.07267	-2.13090

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -5u^2 - 4u - 16$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.215080 + 1.307140I$ $a = 0.662359 + 0.562280I$ $b = 0$	$1.37919 + 2.82812I$	$-6.82789 - 2.41717I$
$u = -0.215080 - 1.307140I$ $a = 0.662359 - 0.562280I$ $b = 0$	$1.37919 - 2.82812I$	$-6.82789 + 2.41717I$
$u = -0.569840$ $a = -1.32472$ $b = 0$	-2.75839	-15.3440

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_6	$u^3(u^{29} + u^{28} + \cdots - 4u - 8)$
c_2	$((u + 1)^3)(u^{29} - 4u^{28} + \cdots + 2u - 1)$
c_3, c_5	$(u^3 + u^2 - 1)(u^{29} + 2u^{28} + \cdots - 15u - 9)$
c_4	$(u^3 - u^2 + 2u - 1)(u^{29} - 2u^{28} + \cdots + u - 1)$
c_7, c_8	$(u^3 + u^2 + 2u + 1)(u^{29} - 2u^{28} + \cdots + u - 1)$
c_9, c_{10}	$((u - 1)^3)(u^{29} - 4u^{28} + \cdots + 2u - 1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_6	$y^3(y^{29} + 21y^{28} + \cdots + 144y - 64)$
c_2, c_9, c_{10}	$((y-1)^3)(y^{29} - 30y^{28} + \cdots + 18y - 1)$
c_3, c_5	$(y^3 - y^2 + 2y - 1)(y^{29} - 24y^{28} + \cdots + 621y - 81)$
c_4, c_7, c_8	$(y^3 + 3y^2 + 2y - 1)(y^{29} + 24y^{28} + \cdots + 13y - 1)$