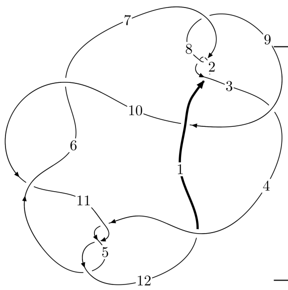
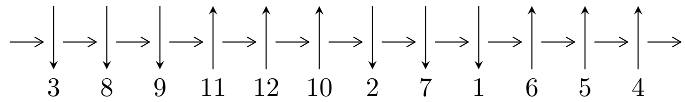
$12a_{0736}$ $(K12a_{0736})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

$$2,7 \xrightarrow[c_7]{} 8 \xrightarrow[c_2]{} 3 \xrightarrow[c_8]{} 9 \xrightarrow[c_3]{} 4 \xrightarrow[c_1]{} 1 \xrightarrow[c_9]{} 10 \xrightarrow[c_6]{} 6 \xrightarrow[c_{10}]{} 11 \xrightarrow[c_{12}]{} 12 \xrightarrow[c_5]{} 5 \gg c_4, c_{11}$$

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

$$I_1^u = \langle u^{69} - 11u^{67} + \cdots + 2u^2 + 1 \rangle$$
$$I_2^u = \langle u + 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 70 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. $I_1^u = \langle u^{69} - 11u^{67} + \cdots + 2u^2 + 1 \rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

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

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

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

$$a_4 = \begin{pmatrix} u^7 - 2u^5 + 2u^3 - 2u \\ -u^7 + u^5 - 2u^3 + u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^3 \\ u^5 - u^3 + u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u^{10} + u^8 - 2u^6 + u^4 - u^2 + 1 \\ -u^{12} + 2u^{10} - 4u^8 + 4u^6 - 3u^4 + 2u^2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u^{22} - 3u^{20} + \cdots + 2u^2 + 1 \\ u^{24} - 4u^{22} + \cdots - 12u^6 + 4u^4 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -u^{34} + 5u^{32} + \cdots + u^2 + 1 \\ -u^{36} + 6u^{34} + \cdots - 3u^4 + 2u^2 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -u^{19} + 4u^{17} - 10u^{15} + 18u^{13} - 23u^{11} + 24u^9 - 18u^7 + 10u^5 - 3u^3 \\ u^{19} - 3u^{17} + 8u^{15} - 13u^{13} + 17u^{11} - 17u^9 + 12u^7 - 6u^5 + u^3 + u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u^{62} + 11u^{60} + \cdots + 2u^2 + 1 \\ u^{62} - 10u^{60} + \cdots + 8u^4 + u^2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u^{67} - 40u^{65} + \cdots - 12u + 2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_8	$u^{69} + 22u^{68} + \cdots - 4u + 1$
c_2, c_7	$u^{69} - 11u^{67} + \cdots + 2u^2 + 1$
c_3	$u^{69} - 2u^{68} + \cdots - 466u + 61$
c_4, c_5, c_{11}	$u^{69} - 2u^{68} + \cdots + 2u^2 + 1$
c_6, c_{10}, c_{12}	$u^{69} + 3u^{68} + \cdots + 96u + 15$
c_9	$u^{69} + 8u^{68} + \cdots - 2u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_8	$y^{69} + 50y^{68} + \cdots + 12y - 1$
c_2, c_7	$y^{69} - 22y^{68} + \cdots - 4y - 1$
c_3	$y^{69} - 10y^{68} + \cdots + 70756y - 3721$
c_4, c_5, c_{11}	$y^{69} - 54y^{68} + \cdots - 4y - 1$
c_6, c_{10}, c_{12}	$y^{69} + 69y^{68} + \cdots - 2124y - 225$
c_9	$y^{69} + 2y^{68} + \cdots - 308y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.991972 + 0.143862I$	$1.34578 + 4.89493I$	$-0.86940 - 7.00797I$
$u = -0.991972 - 0.143862I$	$1.34578 - 4.89493I$	$-0.86940 + 7.00797I$
$u = 0.991475 + 0.091911I$	$-3.34547 - 2.48635I$	$-7.92585 + 6.49145I$
$u = 0.991475 - 0.091911I$	$-3.34547 + 2.48635I$	$-7.92585 - 6.49145I$
$u = -0.658926 + 0.796334I$	$-0.433628 - 0.203581I$	0
$u = -0.658926 - 0.796334I$	$-0.433628 + 0.203581I$	0
$u = 0.736871 + 0.614606I$	$2.92904 + 0.21710I$	$1.212247 - 0.558100I$
$u = 0.736871 - 0.614606I$	$2.92904 - 0.21710I$	$1.212247 + 0.558100I$
$u = 0.664003 + 0.805623I$	$-4.00701 + 4.76117I$	0
$u = 0.664003 - 0.805623I$	$-4.00701 - 4.76117I$	0
$u = -0.708316 + 0.768193I$	$2.43578 - 2.14828I$	$0. + 4.59076I$
$u = -0.708316 - 0.768193I$	$2.43578 + 2.14828I$	$0. - 4.59076I$
$u = 0.745411 + 0.741861I$	$3.11017 - 0.75564I$	0
$u = 0.745411 - 0.741861I$	$3.11017 + 0.75564I$	0
$u = -0.669215 + 0.811820I$	$0.28757 - 9.26473I$	0
$u = -0.669215 - 0.811820I$	$0.28757 + 9.26473I$	0
$u = -0.935368$	-1.88030	-3.00500
$u = 0.715362 + 0.794901I$	$7.54934 + 4.39001I$	0
$u = 0.715362 - 0.794901I$	$7.54934 - 4.39001I$	0
$u = 1.068480 + 0.101467I$	$-6.62522 + 0.10424I$	0
$u = 1.068480 - 0.101467I$	$-6.62522 - 0.10424I$	0
$u = -1.069720 + 0.112307I$	$-10.30900 + 4.49993I$	$-9.11338 + 0.I$
$u = -1.069720 - 0.112307I$	$-10.30900 - 4.49993I$	$-9.11338 + 0.I$
$u = 1.069200 + 0.121692I$	$-6.09738 - 9.05674I$	0
$u = 1.069200 - 0.121692I$	$-6.09738 + 9.05674I$	0
$u = -0.768907 + 0.776307I$	$8.45985 + 1.96096I$	0
$u = -0.768907 - 0.776307I$	$8.45985 - 1.96096I$	0
$u = -0.892627 + 0.630156I$	$-0.52815 + 2.44731I$	0
$u = -0.892627 - 0.630156I$	$-0.52815 - 2.44731I$	0
$u = -0.972878 + 0.520213I$	$-3.78853 - 2.83456I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.972878 - 0.520213I$	$-3.78853 + 2.83456I$	0
$u = 0.977801 + 0.533864I$	$-7.85518 - 1.72176I$	0
$u = 0.977801 - 0.533864I$	$-7.85518 + 1.72176I$	0
$u = -0.981067 + 0.547830I$	$-4.01496 + 6.30286I$	0
$u = -0.981067 - 0.547830I$	$-4.01496 - 6.30286I$	0
$u = 0.841536 + 0.762661I$	$3.17898 - 6.92216I$	0
$u = 0.841536 - 0.762661I$	$3.17898 + 6.92216I$	0
$u = -0.858320 + 0.746163I$	$-0.89607 + 2.81825I$	0
$u = -0.858320 - 0.746163I$	$-0.89607 - 2.81825I$	0
$u = 0.887210 + 0.744059I$	$3.03339 + 1.23094I$	0
$u = 0.887210 - 0.744059I$	$3.03339 - 1.23094I$	0
$u = 0.960144 + 0.658096I$	$2.22365 - 5.28707I$	0
$u = 0.960144 - 0.658096I$	$2.22365 + 5.28707I$	0
$u = 0.964185 + 0.699578I$	$2.44076 - 4.74437I$	0
$u = 0.964185 - 0.699578I$	$2.44076 + 4.74437I$	0
$u = -0.955842 + 0.728092I$	$7.88682 + 3.72650I$	0
$u = -0.955842 - 0.728092I$	$7.88682 - 3.72650I$	0
$u = -0.989530 + 0.707234I$	$1.58470 + 7.74715I$	0
$u = -0.989530 - 0.707234I$	$1.58470 - 7.74715I$	0
$u = 0.993720 + 0.722492I$	$6.70266 - 10.11200I$	0
$u = 0.993720 - 0.722492I$	$6.70266 + 10.11200I$	0
$u = -1.019650 + 0.704891I$	$-1.51932 + 5.86547I$	0
$u = -1.019650 - 0.704891I$	$-1.51932 - 5.86547I$	0
$u = 1.021010 + 0.710171I$	$-5.08551 - 10.46680I$	0
$u = 1.021010 - 0.710171I$	$-5.08551 + 10.46680I$	0
$u = -1.021170 + 0.714495I$	$-0.7784 + 15.0026I$	0
$u = -1.021170 - 0.714495I$	$-0.7784 - 15.0026I$	0
$u = 0.709030 + 0.232698I$	$2.70697 + 0.12234I$	$1.57891 + 1.07217I$
$u = 0.709030 - 0.232698I$	$2.70697 - 0.12234I$	$1.57891 - 1.07217I$
$u = -0.295637 + 0.611584I$	$-2.29380 - 2.06576I$	$0.948201 + 0.462919I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.295637-0.611584I$	$-2.29380+2.06576I$	$0.948201-0.462919I$
$u=0.267368+0.620746I$	$-6.03688-2.42235I$	$-2.36442+2.92314I$
$u=0.267368-0.620746I$	$-6.03688+2.42235I$	$-2.36442-2.92314I$
$u=-0.243750+0.627445I$	$-1.88595+6.88787I$	$1.87116-5.76329I$
$u=-0.243750-0.627445I$	$-1.88595-6.88787I$	$1.87116+5.76329I$
$u=0.097783+0.542313I$	$4.72615-2.75194I$	$7.92617+4.59750I$
$u=0.097783-0.542313I$	$4.72615+2.75194I$	$7.92617-4.59750I$
$u=-0.145390+0.409475I$	$0.081720+0.949994I$	$1.58080-7.18327I$
$u=-0.145390-0.409475I$	$0.081720-0.949994I$	$1.58080+7.18327I$

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

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -1 \\ -1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -1 \\ -1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 2 \\ 1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -6$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_3 c_4, c_5, c_7 c_8, c_{11}	$u + 1$
c_6, c_{10}, c_{12}	u
c_9	$u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_3 c_4, c_5, c_7 c_8, c_9, c_{11}	$y-1$
c_6, c_{10}, c_{12}	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_8	$(u+1)(u^{69}+22u^{68}+\cdots-4u+1)$
c_2, c_7	$(u+1)(u^{69}-11u^{67}+\cdots+2u^2+1)$
c_3	$(u+1)(u^{69}-2u^{68}+\cdots-466u+61)$
c_4, c_5, c_{11}	$(u+1)(u^{69}-2u^{68}+\cdots+2u^2+1)$
c_6, c_{10}, c_{12}	$u(u^{69}+3u^{68}+\cdots+96u+15)$
c_9	$(u-1)(u^{69}+8u^{68}+\cdots-2u-1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_8	$(y-1)(y^{69}+50y^{68}+\cdots+12y-1)$
c_2, c_7	$(y-1)(y^{69}-22y^{68}+\cdots-4y-1)$
c_3	$(y-1)(y^{69}-10y^{68}+\cdots+70756y-3721)$
c_4, c_5, c_{11}	$(y-1)(y^{69}-54y^{68}+\cdots-4y-1)$
c_6, c_{10}, c_{12}	$y(y^{69}+69y^{68}+\cdots-2124y-225)$
c_9	$(y-1)(y^{69}+2y^{68}+\cdots-308y-1)$