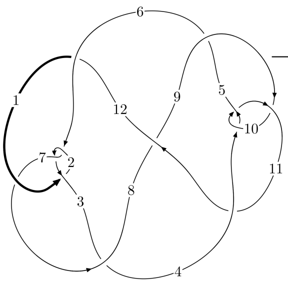
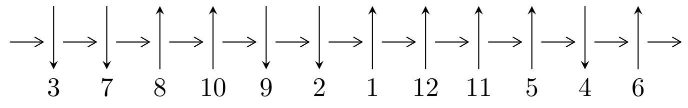
$12a_{0528}$ ($K12a_{0528}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^{90} + 2u^{89} + \cdots + 3u + 1 \rangle$$
$$I_2^u = \langle u - 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 91 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. $I_1^u = \langle u^{90} + 2u^{89} + \cdots + 3u + 1 \rangle$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u^3 \\ -u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u^3 \\ u^5 - u^3 + u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u^6 - u^4 + 1 \\ -u^8 + 2u^6 - 2u^4 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^{17} - 4u^{15} + 7u^{13} - 4u^{11} - 3u^9 + 6u^7 - 2u^5 + u \\ -u^{19} + 5u^{17} - 12u^{15} + 15u^{13} - 9u^{11} - u^9 + 4u^7 - 2u^5 - u^3 + u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u^{11} + 2u^9 - 2u^7 - u^3 \\ u^{11} - 3u^9 + 4u^7 - u^5 - u^3 + u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u^{22} + 5u^{20} - 12u^{18} + 15u^{16} - 10u^{14} + 2u^{12} - u^8 + u^6 - u^4 + 1 \\ u^{22} - 6u^{20} + 17u^{18} - 26u^{16} + 20u^{14} - 13u^{10} + 10u^8 - u^6 - 2u^4 + u^2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u^{47} - 12u^{45} + \cdots + 4u^7 - 2u^3 \\ -u^{49} + 13u^{47} + \cdots - 2u^3 + u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} u^{63} - 16u^{61} + \cdots - 6u^7 + 2u^3 \\ -u^{63} + 17u^{61} + \cdots - 2u^3 + u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u^{89} - 96u^{87} + \cdots + 8u - 2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{90} + 40u^{89} + \cdots + u + 1$
c_2, c_6	$u^{90} - 20u^{88} + \cdots - u + 1$
c_3, c_{12}	$u^{90} + 2u^{89} + \cdots + 35u + 25$
c_4, c_{10}	$u^{90} + 2u^{89} + \cdots + 3u + 1$
c_5, c_{11}	$u^{90} + 3u^{89} + \cdots - 37u + 13$
c_7	$u^{90} - 3u^{89} + \cdots - 69u + 13$
c_8	$u^{90} + 14u^{89} + \cdots + 26531u + 1493$
c_9	$u^{90} - 48u^{89} + \cdots - u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{90} + 20y^{89} + \cdots - 5y + 1$
c_2, c_6	$y^{90} - 40y^{89} + \cdots - y + 1$
c_3, c_{12}	$y^{90} - 72y^{89} + \cdots + 675y + 625$
c_4, c_{10}	$y^{90} - 48y^{89} + \cdots - y + 1$
c_5, c_{11}	$y^{90} + 75y^{89} + \cdots - 21571y + 169$
c_7	$y^{90} + 3y^{89} + \cdots + 8941y + 169$
c_8	$y^{90} - 24y^{89} + \cdots - 76057601y + 2229049$
c_9	$y^{90} - 12y^{89} + \cdots + 3y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.873411 + 0.513697I$	$-1.81913 - 4.09974I$	0
$u = -0.873411 - 0.513697I$	$-1.81913 + 4.09974I$	0
$u = 0.902181 + 0.525801I$	$2.99810 + 6.09081I$	0
$u = 0.902181 - 0.525801I$	$2.99810 - 6.09081I$	0
$u = -0.897963 + 0.536251I$	$1.02275 - 11.20450I$	0
$u = -0.897963 - 0.536251I$	$1.02275 + 11.20450I$	0
$u = 0.922566 + 0.496402I$	$3.48059 + 3.55498I$	0
$u = 0.922566 - 0.496402I$	$3.48059 - 3.55498I$	0
$u = -0.903572 + 0.276220I$	$0.20740 - 3.77187I$	$5.01166 + 7.48596I$
$u = -0.903572 - 0.276220I$	$0.20740 + 3.77187I$	$5.01166 - 7.48596I$
$u = 0.788143 + 0.520655I$	$-4.28906 + 5.70288I$	$-4.46481 - 8.34300I$
$u = 0.788143 - 0.520655I$	$-4.28906 - 5.70288I$	$-4.46481 + 8.34300I$
$u = -0.941169 + 0.480866I$	$1.91087 + 1.41955I$	0
$u = -0.941169 - 0.480866I$	$1.91087 - 1.41955I$	0
$u = -1.059210 + 0.019229I$	$6.75320 - 1.38707I$	0
$u = -1.059210 - 0.019229I$	$6.75320 + 1.38707I$	0
$u = 1.063040 + 0.035242I$	$4.97510 + 6.54466I$	0
$u = 1.063040 - 0.035242I$	$4.97510 - 6.54466I$	0
$u = -0.770968 + 0.482215I$	$-1.57766 - 2.01209I$	$-0.85760 + 4.47164I$
$u = -0.770968 - 0.482215I$	$-1.57766 + 2.01209I$	$-0.85760 - 4.47164I$
$u = 0.738456 + 0.517645I$	$-4.43144 - 1.45967I$	$-5.28174 + 0.47374I$
$u = 0.738456 - 0.517645I$	$-4.43144 + 1.45967I$	$-5.28174 - 0.47374I$
$u = 0.831064 + 0.096380I$	$1.270970 + 0.122716I$	$8.82726 - 0.42041I$
$u = 0.831064 - 0.096380I$	$1.270970 - 0.122716I$	$8.82726 + 0.42041I$
$u = -0.126989 + 0.822033I$	$4.77347 + 11.44800I$	$3.37132 - 7.61382I$
$u = -0.126989 - 0.822033I$	$4.77347 - 11.44800I$	$3.37132 + 7.61382I$
$u = 0.120864 + 0.820667I$	$6.74638 - 6.20589I$	$6.36909 + 3.29581I$
$u = 0.120864 - 0.820667I$	$6.74638 + 6.20589I$	$6.36909 - 3.29581I$
$u = 0.103336 + 0.819213I$	$7.26934 - 3.28559I$	$7.18981 + 2.93019I$
$u = 0.103336 - 0.819213I$	$7.26934 + 3.28559I$	$7.18981 - 2.93019I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.094198 + 0.819093I$	$5.74525 - 1.91608I$	$4.94203 + 2.18879I$
$u = -0.094198 - 0.819093I$	$5.74525 + 1.91608I$	$4.94203 - 2.18879I$
$u = -0.120401 + 0.803953I$	$1.59070 + 4.18357I$	$0.16117 - 3.00795I$
$u = -0.120401 - 0.803953I$	$1.59070 - 4.18357I$	$0.16117 + 3.00795I$
$u = -0.578569 + 0.559212I$	$0.13368 + 6.80952I$	$-0.27186 - 4.68036I$
$u = -0.578569 - 0.559212I$	$0.13368 - 6.80952I$	$-0.27186 + 4.68036I$
$u = -0.620498 + 0.503672I$	$-2.52931 - 0.09500I$	$-4.25506 + 0.72855I$
$u = -0.620498 - 0.503672I$	$-2.52931 + 0.09500I$	$-4.25506 - 0.72855I$
$u = -1.130970 + 0.433801I$	$0.70255 - 4.46851I$	0
$u = -1.130970 - 0.433801I$	$0.70255 + 4.46851I$	0
$u = -1.152640 + 0.389106I$	$1.84992 + 2.50588I$	0
$u = -1.152640 - 0.389106I$	$1.84992 - 2.50588I$	0
$u = 0.561042 + 0.544183I$	$2.05754 - 1.76920I$	$2.90604 + 0.28243I$
$u = 0.561042 - 0.544183I$	$2.05754 + 1.76920I$	$2.90604 - 0.28243I$
$u = 1.162250 + 0.412550I$	$4.17297 + 1.71901I$	0
$u = 1.162250 - 0.412550I$	$4.17297 - 1.71901I$	0
$u = -0.024292 + 0.753892I$	$2.47216 + 2.13571I$	$5.91843 - 3.73421I$
$u = -0.024292 - 0.753892I$	$2.47216 - 2.13571I$	$5.91843 + 3.73421I$
$u = 1.152150 + 0.484969I$	$0.27112 + 3.48997I$	0
$u = 1.152150 - 0.484969I$	$0.27112 - 3.48997I$	0
$u = 0.153502 + 0.729188I$	$-1.85254 - 6.16807I$	$-1.72016 + 7.05399I$
$u = 0.153502 - 0.729188I$	$-1.85254 + 6.16807I$	$-1.72016 - 7.05399I$
$u = -1.170070 + 0.486533I$	$3.64084 - 6.60935I$	0
$u = -1.170070 - 0.486533I$	$3.64084 + 6.60935I$	0
$u = 1.167280 + 0.498284I$	$1.08161 + 10.76960I$	0
$u = 1.167280 - 0.498284I$	$1.08161 - 10.76960I$	0
$u = 1.191320 + 0.443194I$	$5.96752 + 2.13257I$	0
$u = 1.191320 - 0.443194I$	$5.96752 - 2.13257I$	0
$u = 1.213250 + 0.391111I$	$5.57380 - 0.11285I$	0
$u = 1.213250 - 0.391111I$	$5.57380 + 0.11285I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.116850 + 0.712914I$	$0.62172 + 2.11128I$	$2.36589 - 3.42722I$
$u = -0.116850 - 0.712914I$	$0.62172 - 2.11128I$	$2.36589 + 3.42722I$
$u = -1.191720 + 0.461019I$	$5.84080 - 6.54472I$	0
$u = -1.191720 - 0.461019I$	$5.84080 + 6.54472I$	0
$u = 0.485978 + 0.528952I$	$2.30152 + 0.59676I$	$3.38135 - 0.44638I$
$u = 0.485978 - 0.528952I$	$2.30152 - 0.59676I$	$3.38135 + 0.44638I$
$u = 1.224080 + 0.384721I$	$8.85923 - 7.34311I$	0
$u = 1.224080 - 0.384721I$	$8.85923 + 7.34311I$	0
$u = -1.223690 + 0.388798I$	$10.80400 + 2.07981I$	0
$u = -1.223690 - 0.388798I$	$10.80400 - 2.07981I$	0
$u = -1.223810 + 0.399626I$	$11.25850 - 0.90671I$	0
$u = -1.223810 - 0.399626I$	$11.25850 + 0.90671I$	0
$u = 1.224080 + 0.404848I$	$9.70226 + 6.14308I$	0
$u = 1.224080 - 0.404848I$	$9.70226 - 6.14308I$	0
$u = -0.450612 + 0.548105I$	$0.55266 - 5.54561I$	$0.22267 + 5.35237I$
$u = -0.450612 - 0.548105I$	$0.55266 + 5.54561I$	$0.22267 - 5.35237I$
$u = -1.197770 + 0.505207I$	$4.76470 - 8.98285I$	0
$u = -1.197770 - 0.505207I$	$4.76470 + 8.98285I$	0
$u = -1.208040 + 0.497568I$	$9.04174 - 2.87641I$	0
$u = -1.208040 - 0.497568I$	$9.04174 + 2.87641I$	0
$u = 1.206570 + 0.501359I$	$10.53440 + 8.09975I$	0
$u = 1.206570 - 0.501359I$	$10.53440 - 8.09975I$	0
$u = 1.203810 + 0.508612I$	$9.9530 + 11.0635I$	0
$u = 1.203810 - 0.508612I$	$9.9530 - 11.0635I$	0
$u = -1.203080 + 0.511255I$	$7.9613 - 16.3232I$	0
$u = -1.203080 - 0.511255I$	$7.9613 + 16.3232I$	0
$u = 0.164684 + 0.661302I$	$-2.55538 + 0.91259I$	$-3.81773 - 0.78733I$
$u = 0.164684 - 0.661302I$	$-2.55538 - 0.91259I$	$-3.81773 + 0.78733I$
$u = -0.299147 + 0.470065I$	$-1.76511 + 0.79975I$	$-3.82418 - 0.77073I$
$u = -0.299147 - 0.470065I$	$-1.76511 - 0.79975I$	$-3.82418 + 0.77073I$

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

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

	Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u =$	1.00000	1.64493	6.00000

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u+1)(u^{90}+40u^{89}+\cdots+u+1)$
c_2, c_6	$(u-1)(u^{90}-20u^{88}+\cdots-u+1)$
c_3, c_{12}	$(u-1)(u^{90}+2u^{89}+\cdots+35u+25)$
c_4, c_{10}	$(u-1)(u^{90}+2u^{89}+\cdots+3u+1)$
c_5, c_{11}	$u(u^{90}+3u^{89}+\cdots-37u+13)$
c_7	$u(u^{90}-3u^{89}+\cdots-69u+13)$
c_8	$(u-1)(u^{90}+14u^{89}+\cdots+26531u+1493)$
c_9	$(u-1)(u^{90}-48u^{89}+\cdots-u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y-1)(y^{90}+20y^{89}+\cdots-5y+1)$
c_2, c_6	$(y-1)(y^{90}-40y^{89}+\cdots-y+1)$
c_3, c_{12}	$(y-1)(y^{90}-72y^{89}+\cdots+675y+625)$
c_4, c_{10}	$(y-1)(y^{90}-48y^{89}+\cdots-y+1)$
c_5, c_{11}	$y(y^{90}+75y^{89}+\cdots-21571y+169)$
c_7	$y(y^{90}+3y^{89}+\cdots+8941y+169)$
c_8	$(y-1)(y^{90}-24y^{89}+\cdots-7.60576\times10^{7}y+2229049)$
c_9	$(y-1)(y^{90}-12y^{89}+\cdots+3y+1)$