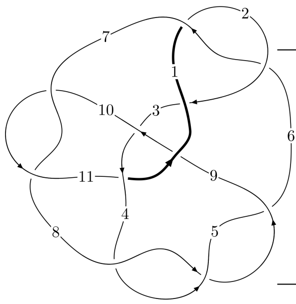
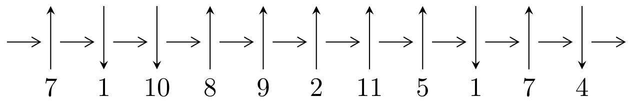
$11n_{129}$ ($K11n_{129}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned} I_1^u = \langle &-2.31440 \times 10^{35}u^{29} - 4.29609 \times 10^{35}u^{28} + \cdots + 1.17974 \times 10^{36}b - 3.84219 \times 10^{36}, \\ &1.35861 \times 10^{37}u^{29} + 2.76955 \times 10^{37}u^{28} + \cdots + 3.42123 \times 10^{37}a + 4.28134 \times 10^{38}, \\ &u^{30} + 3u^{29} + \cdots + 120u + 29\rangle \\ I_2^u = \langle &u^6 - u^5 - u^2 + b + 2u,\ -u^8 + 2u^7 - 3u^5 + 2u^4 - u^3 + u^2 + a + 2u - 3, \\ &u^9 - 2u^8 - u^7 + 4u^6 - u^5 - u^3 - 3u^2 + 3u + 1\rangle \end{aligned}$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 39 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. $\boldsymbol{I_1^u = \langle -2.31 \times 10^{35} u^{29} - 4.30 \times 10^{35} u^{28} + \cdots + 1.18 \times 10^{36} b - 3.84 \times 10^{36},\ 1.36 \times 10^{37} u^{29} + 2.77 \times 10^{37} u^{28} + \cdots + 3.42 \times 10^{37} a + 4.28 \times 10^{38},\ u^{30} + 3u^{29} + \cdots + 120u + 29 \rangle}$

(i) Arc colorings

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

$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -0.397110u^{29} - 0.809517u^{28} + \cdots - 36.6655u - 12.5140 \\ 0.196180u^{29} + 0.364157u^{28} + \cdots + 15.5278u + 3.25682 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} -0.559813u^{29} - 1.18451u^{28} + \cdots - 55.4393u - 20.3298 \\ 0.296144u^{29} + 0.567389u^{28} + \cdots + 24.3826u + 6.53699 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.434170u^{29} - 0.988757u^{28} + \cdots - 46.6121u - 16.4142 \\ 0.0403473u^{29} + 0.114621u^{28} + \cdots + 7.11329u + 2.56728 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.393822u^{29} - 0.874135u^{28} + \cdots - 39.4988u - 13.8469 \\ 0.0403473u^{29} + 0.114621u^{28} + \cdots + 7.11329u + 2.56728 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.0125629u^{29} - 0.00130980u^{28} + \cdots - 1.04271u + 1.25453 \\ -0.247561u^{29} - 0.534045u^{28} + \cdots - 24.8763u - 7.72880 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u \\ u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.550336u^{29} - 1.10515u^{28} + \cdots - 49.7304u - 17.0796 \\ 0.349405u^{29} + 0.659790u^{28} + \cdots + 28.5927u + 7.82236 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.330131u^{29} + 0.777311u^{28} + \cdots + 38.6348u + 14.8960 \\ -0.0389985u^{29} - 0.0361593u^{28} + \cdots - 0.253016u - 0.364324 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.330131u^{29} + 0.777311u^{28} + \cdots + 38.6348u + 14.8960 \\ -0.0389985u^{29} - 0.0361593u^{28} + \cdots - 0.253016u - 0.364324 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.409930u^{29} - 0.752927u^{28} + \cdots - 34.5863u + 2.19818$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_6	$u^{30} + u^{29} + \cdots - 10u + 1$
c_2	$u^{30} + 37u^{29} + \cdots + 78u + 1$
c_3	$u^{30} + 2u^{29} + \cdots + 423u - 121$
c_4, c_5, c_8	$u^{30} - 2u^{29} + \cdots + 10u - 11$
c_7, c_{10}	$u^{30} - 3u^{29} + \cdots - 120u + 29$
c_9	$u^{30} - 4u^{29} + \cdots + 1012u - 61$
c_{11}	$u^{30} - 3u^{29} + \cdots + 80u - 7$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_6	$y^{30} + 37y^{29} + \cdots + 78y + 1$
c_2	$y^{30} - 79y^{29} + \cdots + 2922y + 1$
c_3	$y^{30} - 36y^{29} + \cdots - 406651y + 14641$
c_4, c_5, c_8	$y^{30} - 28y^{29} + \cdots - 122y + 121$
c_7, c_{10}	$y^{30} - 15y^{29} + \cdots - 7034y + 841$
c_9	$y^{30} - 40y^{29} + \cdots - 182466y + 3721$
c_{11}	$y^{30} + 15y^{29} + \cdots - 5378y + 49$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.818507 + 0.418994I$ $a = 0.149226 - 1.014830I$ $b = 1.78901 + 1.43406I$	$-5.25125 + 0.68579I$	$5.61474 + 0.93865I$
$u = -0.818507 - 0.418994I$ $a = 0.149226 + 1.014830I$ $b = 1.78901 - 1.43406I$	$-5.25125 - 0.68579I$	$5.61474 - 0.93865I$
$u = 0.624245 + 0.671788I$ $a = 0.421688 + 1.150570I$ $b = -0.584922 - 0.354810I$	$5.44904 + 2.23619I$	$4.08223 - 3.08847I$
$u = 0.624245 - 0.671788I$ $a = 0.421688 - 1.150570I$ $b = -0.584922 + 0.354810I$	$5.44904 - 2.23619I$	$4.08223 + 3.08847I$
$u = -1.023250 + 0.383143I$ $a = -1.399580 + 0.049686I$ $b = -0.137063 - 0.842520I$	$-4.55029 - 3.91642I$	$4.57066 + 2.81955I$
$u = -1.023250 - 0.383143I$ $a = -1.399580 - 0.049686I$ $b = -0.137063 + 0.842520I$	$-4.55029 + 3.91642I$	$4.57066 - 2.81955I$
$u = -1.156040 + 0.034465I$ $a = 0.073453 - 0.680796I$ $b = -0.48025 + 1.49217I$	$2.03013 + 0.06329I$	$5.83733 + 0.25546I$
$u = -1.156040 - 0.034465I$ $a = 0.073453 + 0.680796I$ $b = -0.48025 - 1.49217I$	$2.03013 - 0.06329I$	$5.83733 - 0.25546I$
$u = 0.795313 + 0.244851I$ $a = 0.02386 + 1.42526I$ $b = 0.45732 - 1.49635I$	$1.16010 + 2.70821I$	$1.48721 - 5.36654I$
$u = 0.795313 - 0.244851I$ $a = 0.02386 - 1.42526I$ $b = 0.45732 + 1.49635I$	$1.16010 - 2.70821I$	$1.48721 + 5.36654I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.873624 + 0.796874I$ $a = 0.740021 - 0.848178I$ $b = -0.138479 + 1.278340I$	$4.61816 + 0.06790I$	$5.73031 - 0.16143I$
$u = -0.873624 - 0.796874I$ $a = 0.740021 + 0.848178I$ $b = -0.138479 - 1.278340I$	$4.61816 - 0.06790I$	$5.73031 + 0.16143I$
$u = -0.796958$ $a = 1.72442$ $b = 0.0618987$	0.572803	10.1420
$u = 0.718056 + 1.055960I$ $a = 0.821578 - 0.291189I$ $b = 0.111688 - 0.747195I$	$-9.10651 + 0.37265I$	$-0.282021 + 0.198994I$
$u = 0.718056 - 1.055960I$ $a = 0.821578 + 0.291189I$ $b = 0.111688 + 0.747195I$	$-9.10651 - 0.37265I$	$-0.282021 - 0.198994I$
$u = 1.115300 + 0.723201I$ $a = -0.038982 - 0.938537I$ $b = -1.15595 + 1.86596I$	$-7.65463 + 6.05562I$	$2.17136 - 4.65322I$
$u = 1.115300 - 0.723201I$ $a = -0.038982 + 0.938537I$ $b = -1.15595 - 1.86596I$	$-7.65463 - 6.05562I$	$2.17136 + 4.65322I$
$u = -1.167780 + 0.765588I$ $a = -0.272505 + 1.070770I$ $b = -0.35697 - 1.64614I$	$5.69085 - 6.45106I$	$6.67961 + 5.50435I$
$u = -1.167780 - 0.765588I$ $a = -0.272505 - 1.070770I$ $b = -0.35697 + 1.64614I$	$5.69085 + 6.45106I$	$6.67961 - 5.50435I$
$u = 1.37025 + 0.39698I$ $a = 0.223661 - 0.786242I$ $b = 0.280709 + 1.271790I$	$8.63028 + 2.56200I$	$10.62309 + 0.27158I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.37025 - 0.39698I$ $a = 0.223661 + 0.786242I$ $b = 0.280709 - 1.271790I$	$8.63028 - 2.56200I$	$10.62309 - 0.27158I$
$u = 0.004317 + 0.547819I$ $a = -0.721264 + 1.206740I$ $b = 0.150599 + 0.025373I$	$-1.21990 - 1.07662I$	$-2.59095 + 4.11373I$
$u = 0.004317 - 0.547819I$ $a = -0.721264 - 1.206740I$ $b = 0.150599 - 0.025373I$	$-1.21990 + 1.07662I$	$-2.59095 - 4.11373I$
$u = -0.443842$ $a = -0.206304$ $b = -0.607008$	0.892044	12.1650
$u = 1.55455 + 0.15333I$ $a = -0.406036 + 0.700408I$ $b = 0.17299 - 1.70175I$	$3.98744 + 3.00009I$	$5.48464 - 3.04608I$
$u = 1.55455 - 0.15333I$ $a = -0.406036 - 0.700408I$ $b = 0.17299 + 1.70175I$	$3.98744 - 3.00009I$	$5.48464 + 3.04608I$
$u = -1.48154 + 0.82940I$ $a = -0.017919 - 0.925838I$ $b = 0.78170 + 1.80867I$	$-1.77013 - 11.72040I$	$4.67233 + 5.69667I$
$u = -1.48154 - 0.82940I$ $a = -0.017919 + 0.925838I$ $b = 0.78170 - 1.80867I$	$-1.77013 + 11.72040I$	$4.67233 - 5.69667I$
$u = -0.54089 + 1.67235I$ $a = -0.545917 + 0.023732I$ $b = -0.117829 - 0.641723I$	$-5.21310 + 3.06517I$	$5.76591 - 3.12781I$
$u = -0.54089 - 1.67235I$ $a = -0.545917 - 0.023732I$ $b = -0.117829 + 0.641723I$	$-5.21310 - 3.06517I$	$5.76591 + 3.12781I$

II. $\boldsymbol{I_2^u = \langle u^6 - u^5 - u^2 + b + 2u,\ -u^8 + 2u^7 - 3u^5 + 2u^4 - u^3 + u^2 + a + 2u - 3,\ u^9 - 2u^8 - u^7 + 4u^6 - u^5 - u^3 - 3u^2 + 3u + 1\rangle}$

(i) Arc colorings

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

$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u^8 - 2u^7 + 3u^5 - 2u^4 + u^3 - u^2 - 2u + 3 \\ -u^6 + u^5 + u^2 - 2u \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} 2u^8 - 3u^7 - 2u^6 + 5u^5 - 2u^4 + 2u^3 - 5u + 3 \\ -u^8 + u^7 + 2u^6 - u^5 - 2u^4 - u^3 + u^2 + 2u + 1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^8 - 2u^7 + 3u^5 - 2u^4 + u^3 - u^2 - u + 3 \\ -u^6 + u^5 + u^4 - u^3 - u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u^8 - 2u^7 - u^6 + 4u^5 - u^4 - u^2 - 2u + 3 \\ -u^6 + u^5 + u^4 - u^3 - u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u^7 + u^6 + 2u^5 - 2u^4 - u^3 + 2 \\ u^5 - u^4 - u^3 + u^2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u \\ u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u^8 - 2u^7 - u^6 + 4u^5 - u^4 - u^2 - 3u + 3 \\ -u^4 + u^3 + u^2 - u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u^7 - u^6 - 2u^5 + 2u^4 + u^3 + u^2 - u - 3 \\ -u^8 + u^7 + 2u^6 - 2u^5 - u^4 + 2u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u^7 - u^6 - 2u^5 + 2u^4 + u^3 + u^2 - u - 3 \\ -u^8 + u^7 + 2u^6 - 2u^5 - u^4 + 2u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -u^8 + u^7 + 2u^6 - 4u^5 + u^2 + 4u + 1$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^9 + 5u^7 + 9u^5 + u^4 + 8u^3 + u^2 + 3u + 1$
c_2	$u^9 + 10u^8 + 43u^7 + 106u^6 + 167u^5 + 173u^4 + 116u^3 + 45u^2 + 7u - 1$
c_3	$u^9 - u^8 - u^7 - u^6 + 3u^4 + 3u^3 + 4u^2 + 2u + 1$
c_4, c_5	$u^9 - u^8 - 5u^7 + 5u^6 + 8u^5 - 8u^4 - 4u^3 + 3u^2 + u + 1$
c_6	$u^9 + 5u^7 + 9u^5 - u^4 + 8u^3 - u^2 + 3u - 1$
c_7	$u^9 - 2u^8 - u^7 + 4u^6 - u^5 - u^3 - 3u^2 + 3u + 1$
c_8	$u^9 + u^8 - 5u^7 - 5u^6 + 8u^5 + 8u^4 - 4u^3 - 3u^2 + u - 1$
c_9	$u^9 - 3u^8 + 3u^7 - 5u^6 + 6u^5 + 6u^3 - 3u^2 - 3u - 1$
c_{10}	$u^9 + 2u^8 - u^7 - 4u^6 - u^5 - u^3 + 3u^2 + 3u - 1$
c_{11}	$u^9 - 2u^8 + 4u^7 - 3u^6 + 3u^5 - u^3 + u^2 - u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_6	$y^9 + 10y^8 + 43y^7 + 106y^6 + 167y^5 + 173y^4 + 116y^3 + 45y^2 + 7y - 1$
c_2	$y^9 - 14y^8 + \cdots + 139y - 1$
c_3	$y^9 - 3y^8 - y^7 + 11y^6 + 12y^5 - 3y^4 - 13y^3 - 10y^2 - 4y - 1$
c_4, c_5, c_8	$y^9 - 11y^8 + 51y^7 - 129y^6 + 192y^5 - 166y^4 + 70y^3 - y^2 - 5y - 1$
c_7, c_{10}	$y^9 - 6y^8 + 15y^7 - 16y^6 - 3y^5 + 24y^4 - 13y^3 - 15y^2 + 15y - 1$
c_9	$y^9 - 3y^8 - 9y^7 + 23y^6 + 48y^5 + 18y^4 - 10y^3 - 45y^2 + 3y - 1$
c_{11}	$y^9 + 4y^8 + 10y^7 + 13y^6 + 3y^5 - 12y^4 - 11y^3 + y^2 + 3y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.168914 + 0.950661I$ $a = 0.049336 - 0.609720I$ $b = -0.784185 - 0.982357I$	$-6.63247 + 1.79022I$	$1.84978 - 1.07531I$
$u = -0.168914 - 0.950661I$ $a = 0.049336 + 0.609720I$ $b = -0.784185 + 0.982357I$	$-6.63247 - 1.79022I$	$1.84978 + 1.07531I$
$u = -1.145600 + 0.103496I$ $a = 0.414158 - 0.863364I$ $b = -0.20585 + 1.62467I$	$1.93998 + 1.74600I$	$4.48812 - 2.12055I$
$u = -1.145600 - 0.103496I$ $a = 0.414158 + 0.863364I$ $b = -0.20585 - 1.62467I$	$1.93998 - 1.74600I$	$4.48812 + 2.12055I$
$u = 1.161230 + 0.594201I$ $a = -0.279042 - 0.783472I$ $b = 0.68024 + 1.36518I$	$6.80275 + 0.69172I$	$8.39096 + 0.05325I$
$u = 1.161230 - 0.594201I$ $a = -0.279042 + 0.783472I$ $b = 0.68024 - 1.36518I$	$6.80275 - 0.69172I$	$8.39096 - 0.05325I$
$u = 1.287590 + 0.340306I$ $a = -0.400111 + 1.033390I$ $b = 0.005983 - 1.355130I$	$7.89851 + 3.55465I$	$6.26919 - 4.19762I$
$u = 1.287590 - 0.340306I$ $a = -0.400111 - 1.033390I$ $b = 0.005983 + 1.355130I$	$7.89851 - 3.55465I$	$6.26919 + 4.19762I$
$u = -0.268618$ $a = 3.43132$ $b = 0.607619$	-0.278310	0.00389950

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^9+5u^7+\cdots+3u+1)(u^{30}+u^{29}+\cdots-10u+1)$
c_2	$(u^9+10u^8+43u^7+106u^6+167u^5+173u^4+116u^3+45u^2+7u-1)$ $\cdot(u^{30}+37u^{29}+\cdots+78u+1)$
c_3	$(u^9-u^8-u^7-u^6+3u^4+3u^3+4u^2+2u+1)$ $\cdot(u^{30}+2u^{29}+\cdots+423u-121)$
c_4, c_5	$(u^9-u^8-5u^7+5u^6+8u^5-8u^4-4u^3+3u^2+u+1)$ $\cdot(u^{30}-2u^{29}+\cdots+10u-11)$
c_6	$(u^9+5u^7+\cdots+3u-1)(u^{30}+u^{29}+\cdots-10u+1)$
c_7	$(u^9-2u^8-u^7+4u^6-u^5-u^3-3u^2+3u+1)$ $\cdot(u^{30}-3u^{29}+\cdots-120u+29)$
c_8	$(u^9+u^8-5u^7-5u^6+8u^5+8u^4-4u^3-3u^2+u-1)$ $\cdot(u^{30}-2u^{29}+\cdots+10u-11)$
c_9	$(u^9-3u^8+3u^7-5u^6+6u^5+6u^3-3u^2-3u-1)$ $\cdot(u^{30}-4u^{29}+\cdots+1012u-61)$
c_{10}	$(u^9+2u^8-u^7-4u^6-u^5-u^3+3u^2+3u-1)$ $\cdot(u^{30}-3u^{29}+\cdots-120u+29)$
c_{11}	$(u^9-2u^8+4u^7-3u^6+3u^5-u^3+u^2-u-1)$ $\cdot(u^{30}-3u^{29}+\cdots+80u-7)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_6	$(y^9+10y^8+43y^7+106y^6+167y^5+173y^4+116y^3+45y^2+7y-1)$ $\cdot(y^{30}+37y^{29}+\cdots+78y+1)$
c_2	$(y^9-14y^8+\cdots+139y-1)(y^{30}-79y^{29}+\cdots+2922y+1)$
c_3	$(y^9-3y^8-y^7+11y^6+12y^5-3y^4-13y^3-10y^2-4y-1)$ $\cdot(y^{30}-36y^{29}+\cdots-406651y+14641)$
c_4, c_5, c_8	$(y^9-11y^8+51y^7-129y^6+192y^5-166y^4+70y^3-y^2-5y-1)$ $\cdot(y^{30}-28y^{29}+\cdots-122y+121)$
c_7, c_{10}	$(y^9-6y^8+15y^7-16y^6-3y^5+24y^4-13y^3-15y^2+15y-1)$ $\cdot(y^{30}-15y^{29}+\cdots-7034y+841)$
c_9	$(y^9-3y^8-9y^7+23y^6+48y^5+18y^4-10y^3-45y^2+3y-1)$ $\cdot(y^{30}-40y^{29}+\cdots-182466y+3721)$
c_{11}	$(y^9+4y^8+10y^7+13y^6+3y^5-12y^4-11y^3+y^2+3y-1)$ $\cdot(y^{30}+15y^{29}+\cdots-5378y+49)$