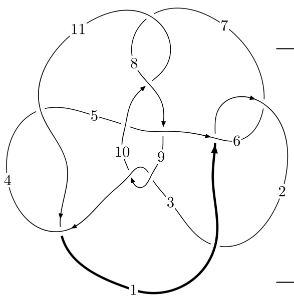
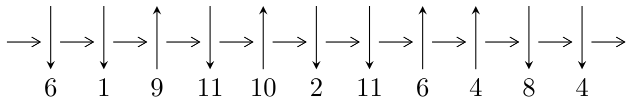
$11n_{143}$ ($K11n_{143}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & 27169327131u^{12} - 4728521972u^{11} + \cdots + 163375109309b + 102043710068, \\
& 46748483168u^{12} - 1185808565u^{11} + \cdots + 163375109309a - 246903703505, \\
& u^{13} - u^{12} - 16u^{11} + 13u^{10} + 93u^9 - 90u^8 + 85u^7 - 4u^6 + 11u^5 - 20u^4 + 2u^2 + u - 1\rangle \\
I_2^u = \langle & 3u^8 - 5u^6 - u^5 - 7u^4 - 6u^3 + b - 3u + 2,\ -2u^8 + u^7 + 3u^6 - u^5 + 4u^4 + 3u^3 - u^2 + a + 2u - 1, \\
& u^9 - u^7 - 3u^5 - 3u^4 - 2u^3 - 3u^2 - u - 1\rangle
\end{aligned}$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 22 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.

$\boldsymbol{I_1^u = \langle 2.72\times 10^{10}u^{12} - 4.73\times 10^{9}u^{11} + \cdots + 1.63\times 10^{11}b + 1.02\times 10^{11},\ 4.67\times 10^{10}u^{12} - 1.19\times 10^{9}u^{11} + \cdots + 1.63\times 10^{11}a - 2.47\times 10^{11},\ u^{13} - u^{12} + \cdots + u - 1\rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_1 = \begin{pmatrix} -0.286142u^{12} + 0.00725820u^{11} + \cdots + 0.326465u + 1.51127 \\ -0.166300u^{12} + 0.0289427u^{11} + \cdots - 0.0380012u - 0.624598 \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} -1.45178u^{12} + 1.36239u^{11} + \cdots - 1.27398u - 1.38184 \\ -0.0325056u^{12} + 0.182051u^{11} + \cdots - 1.79766u - 0.0596779 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.286142u^{12} + 0.00725820u^{11} + \cdots + 0.326465u + 1.51127 \\ -0.0919107u^{12} + 0.0169286u^{11} + \cdots - 0.0307430u - 0.345714 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 1.39226u^{12} - 1.21256u^{11} + \cdots - 1.08841u + 1.29245 \\ 0.0595160u^{12} - 0.149831u^{11} + \cdots + 2.36239u + 0.0893943 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1.45178u^{12} - 1.36239u^{11} + \cdots + 1.27398u + 1.38184 \\ 0.0595160u^{12} - 0.149831u^{11} + \cdots + 2.36239u + 0.0893943 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.286142u^{12} - 0.00725820u^{11} + \cdots - 0.326465u - 1.51127 \\ 0.0289310u^{12} + 0.00713908u^{11} + \cdots + 0.000702000u + 0.287036 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.0893943u^{12} - 0.0298782u^{11} + \cdots - 0.0699394u + 2.45178 \\ -0.0903148u^{12} + 0.0234848u^{11} + \cdots + 0.0298782u + 0.0595160 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.0893943u^{12} - 0.0298782u^{11} + \cdots - 0.0699394u + 2.45178 \\ -0.0903148u^{12} + 0.0234848u^{11} + \cdots + 0.0298782u + 0.0595160 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= -\frac{4256498416444}{163375109309}u^{12} + \frac{257561868150}{163375109309}u^{11} + \cdots + \frac{8212805964 94}{163375109309}u - \frac{283918679660}{163375109309}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_6	$u^{13} - 11u^{12} + \cdots - 48u + 16$
c_2	$u^{13} + 7u^{12} + \cdots - 640u + 256$
c_3, c_8, c_9	$u^{13} + u^{12} + \cdots + u + 1$
c_4, c_{11}	$u^{13} - 3u^{12} + \cdots - 2u + 1$
c_5	$u^{13} - 14u^{11} + \cdots + 13u + 6$
c_7, c_{10}	$u^{13} - 3u^{12} + \cdots + 3u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_6	$y^{13} - 7y^{12} + \cdots - 640y - 256$
c_2	$y^{13} + 69y^{12} + \cdots - 106496y - 65536$
c_3, c_8, c_9	$y^{13} - 33y^{12} + \cdots + 5y - 1$
c_4, c_{11}	$y^{13} + 27y^{12} + \cdots - 34y - 1$
c_5	$y^{13} - 28y^{12} + \cdots - 83y - 36$
c_7, c_{10}	$y^{13} + y^{12} + \cdots - y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.444507 + 0.873153I$ $a = 0.145964 + 0.210434I$ $b = -0.10255 - 2.20008I$	$-5.13656 + 3.94627I$	$0.021726 + 1.151779I$
$u = 0.444507 - 0.873153I$ $a = 0.145964 - 0.210434I$ $b = -0.10255 + 2.20008I$	$-5.13656 - 3.94627I$	$0.021726 - 1.151779I$
$u = -0.278059 + 0.532845I$ $a = 0.482522 - 0.330538I$ $b = -0.243913 + 0.386628I$	$-0.112278 - 1.172770I$	$-1.56848 + 5.39486I$
$u = -0.278059 - 0.532845I$ $a = 0.482522 + 0.330538I$ $b = -0.243913 - 0.386628I$	$-0.112278 + 1.172770I$	$-1.56848 - 5.39486I$
$u = 0.581027$ $a = 1.33008$ $b = 0.743719$	-1.77301	-4.59260
$u = -0.395821 + 0.255747I$ $a = 1.63033 - 1.89256I$ $b = -0.681021 - 0.928853I$	$3.39477 - 1.45394I$	$0.239284 + 0.384387I$
$u = -0.395821 - 0.255747I$ $a = 1.63033 + 1.89256I$ $b = -0.681021 + 0.928853I$	$3.39477 + 1.45394I$	$0.239284 - 0.384387I$
$u = 0.364118 + 0.280685I$ $a = 2.64015 + 1.42143I$ $b = -0.470210 + 1.143350I$	$3.10631 - 4.18292I$	$3.50367 + 6.73830I$
$u = 0.364118 - 0.280685I$ $a = 2.64015 - 1.42143I$ $b = -0.470210 - 1.143350I$	$3.10631 + 4.18292I$	$3.50367 - 6.73830I$
$u = -3.02519 + 1.05130I$ $a = 0.060075 + 0.847736I$ $b = 6.04324 + 4.26131I$	$16.1187 - 1.6452I$	$-0.771905 + 0.029863I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -3.02519 - 1.05130I$ $a = 0.060075 - 0.847736I$ $b = 6.04324 - 4.26131I$	$16.1187 + 1.6452I$	$-0.771905 - 0.029863I$
$u = 3.09993 + 0.83578I$ $a = -0.124080 + 0.900887I$ $b = -5.91741 + 5.22009I$	$16.4142 + 9.3138I$	$-0.62797 - 3.85299I$
$u = 3.09993 - 0.83578I$ $a = -0.124080 - 0.900887I$ $b = -5.91741 - 5.22009I$	$16.4142 - 9.3138I$	$-0.62797 + 3.85299I$

II. $\boldsymbol{I^u_2 = \langle 3u^8 - 5u^6 - u^5 - 7u^4 - 6u^3 + b - 3u + 2,\ -2u^8 + u^7 + \cdots + a - 1,\ u^9 - u^7 - 3u^5 - 3u^4 - 2u^3 - 3u^2 - u - 1\rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 2u^8 - u^7 - 3u^6 + u^5 - 4u^4 - 3u^3 + u^2 - 2u + 1 \\ -3u^8 + 5u^6 + u^5 + 7u^4 + 6u^3 + 3u - 2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -u^7 + 2u^5 + u^3 + 3u^2 + 1 \\ -3u^8 + 5u^6 + u^5 + 7u^4 + 6u^3 + 2u - 2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 2u^8 - u^7 - 3u^6 + u^5 - 4u^4 - 3u^3 + u^2 - 2u + 1 \\ -2u^8 + 3u^6 + u^5 + 5u^4 + 4u^3 + 2u - 1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 2u^7 - 4u^5 - 3u^3 - 5u^2 - 2 \\ -u^7 + 2u^5 + 2u^3 + 2u^2 + 1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u^7 - 2u^5 - u^3 - 3u^2 - 1 \\ -u^7 + 2u^5 + 2u^3 + 2u^2 + 1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -2u^8 + u^7 + 3u^6 - u^5 + 4u^4 + 3u^3 - u^2 + 2u - 1 \\ 3u^8 + u^7 - 4u^6 - 3u^5 - 9u^4 - 8u^3 - 3u^2 - 4u + 1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u^8 + 2u^6 + u^4 + 3u^3 + u + 1 \\ u^8 - 2u^6 - 2u^4 - 2u^3 + u^2 - u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u^8 + 2u^6 + u^4 + 3u^3 + u + 1 \\ u^8 - 2u^6 - 2u^4 - 2u^3 + u^2 - u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -11u^8 - 6u^7 + 11u^6 + 15u^5 + 36u^4 + 40u^3 + 29u^2 + 19u + 4$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^9 + u^8 - 3u^7 - 5u^6 + 2u^5 + 8u^4 + u^3 - 4u^2 - u + 1$
c_2	$u^9 + 7u^8 + 23u^7 + 51u^6 + 84u^5 + 96u^4 + 71u^3 + 34u^2 + 9u + 1$
c_3, c_8	$u^9 - u^7 - 3u^5 + 3u^4 - 2u^3 + 3u^2 - u + 1$
c_4	$u^9 + 2u^8 + 3u^7 + 3u^6 + u^5 + u^4 + u^3 - 2u^2 + 1$
c_5	$u^9 + u^8 + 2u^5 + 5u^4 + 4u^3 + 3u^2 + 2u + 1$
c_6	$u^9 - u^8 - 3u^7 + 5u^6 + 2u^5 - 8u^4 + u^3 + 4u^2 - u - 1$
c_7	$u^9 - 4u^8 + 8u^7 - 8u^6 + 4u^5 + u^4 - 3u^3 + 4u^2 - 3u + 1$
c_9	$u^9 - u^7 - 3u^5 - 3u^4 - 2u^3 - 3u^2 - u - 1$
c_{10}	$u^9 + 4u^8 + 8u^7 + 8u^6 + 4u^5 - u^4 - 3u^3 - 4u^2 - 3u - 1$
c_{11}	$u^9 - 2u^8 + 3u^7 - 3u^6 + u^5 - u^4 + u^3 + 2u^2 - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_6	$y^9 - 7y^8 + 23y^7 - 51y^6 + 84y^5 - 96y^4 + 71y^3 - 34y^2 + 9y - 1$
c_2	$y^9 - 3y^8 - 17y^7 + 61y^6 + 72y^5 - 356y^4 - 77y^3 - 70y^2 + 13y - 1$
c_3, c_8, c_9	$y^9 - 2y^8 - 5y^7 + 2y^6 + 11y^5 + 5y^4 - 8y^3 - 11y^2 - 5y - 1$
c_4, c_{11}	$y^9 + 2y^8 - y^7 - 5y^6 + 9y^5 + 9y^4 - y^3 - 6y^2 + 4y - 1$
c_5	$y^9 - y^8 + 4y^7 - 2y^6 + 2y^5 - 11y^4 - 6y^3 - 3y^2 - 2y - 1$
c_7, c_{10}	$y^9 + 8y^7 + 2y^6 + 10y^5 - y^4 - 7y^3 + y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.187026+0.975482I$ $a = 1.49016-0.14200I$ $b = -1.04647+1.04626I$	$2.30462-3.49273I$	$-2.36810+1.84153I$
$u = 0.187026-0.975482I$ $a = 1.49016+0.14200I$ $b = -1.04647-1.04626I$	$2.30462+3.49273I$	$-2.36810-1.84153I$
$u = 0.371524+0.883251I$ $a = 0.023313+0.680902I$ $b = -0.23136-2.96704I$	$-5.46047+4.24647I$	$-14.3219-11.0959I$
$u = 0.371524-0.883251I$ $a = 0.023313-0.680902I$ $b = -0.23136+2.96704I$	$-5.46047-4.24647I$	$-14.3219+11.0959I$
$u = -1.182340+0.166435I$ $a = 0.381598-0.765916I$ $b = -0.406219-0.959782I$	$4.76964-2.24591I$	$6.27523+4.01918I$
$u = -1.182340-0.166435I$ $a = 0.381598+0.765916I$ $b = -0.406219+0.959782I$	$4.76964+2.24591I$	$6.27523-4.01918I$
$u = -0.245900+0.620274I$ $a = -0.08889-1.83830I$ $b = -0.76587+2.09421I$	$-2.24646-2.97681I$	$0.11269+3.28969I$
$u = -0.245900-0.620274I$ $a = -0.08889+1.83830I$ $b = -0.76587-2.09421I$	$-2.24646+2.97681I$	$0.11269-3.28969I$
$u = 1.73938$ $a = 0.387642$ $b = 1.89983$	1.26533	-2.39580

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^9+u^8-3u^7-5u^6+2u^5+8u^4+u^3-4u^2-u+1)$ $\cdot(u^{13}-11u^{12}+\cdots-48u+16)$
c_2	$(u^9+7u^8+23u^7+51u^6+84u^5+96u^4+71u^3+34u^2+9u+1)$ $\cdot(u^{13}+7u^{12}+\cdots-640u+256)$
c_3, c_8	$(u^9-u^7+\cdots-u+1)(u^{13}+u^{12}+\cdots+u+1)$
c_4	$(u^9+2u^8+\cdots-2u^2+1)(u^{13}-3u^{12}+\cdots-2u+1)$
c_5	$(u^9+u^8+\cdots+2u+1)(u^{13}-14u^{11}+\cdots+13u+6)$
c_6	$(u^9-u^8-3u^7+5u^6+2u^5-8u^4+u^3+4u^2-u-1)$ $\cdot(u^{13}-11u^{12}+\cdots-48u+16)$
c_7	$(u^9-4u^8+8u^7-8u^6+4u^5+u^4-3u^3+4u^2-3u+1)$ $\cdot(u^{13}-3u^{12}+\cdots+3u-1)$
c_9	$(u^9-u^7+\cdots-u-1)(u^{13}+u^{12}+\cdots+u+1)$
c_{10}	$(u^9+4u^8+8u^7+8u^6+4u^5-u^4-3u^3-4u^2-3u-1)$ $\cdot(u^{13}-3u^{12}+\cdots+3u-1)$
c_{11}	$(u^9-2u^8+\cdots+2u^2-1)(u^{13}-3u^{12}+\cdots-2u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_6	$(y^9 - 7y^8 + 23y^7 - 51y^6 + 84y^5 - 96y^4 + 71y^3 - 34y^2 + 9y - 1)$ $\cdot (y^{13} - 7y^{12} + \cdots - 640y - 256)$
c_2	$(y^9 - 3y^8 - 17y^7 + 61y^6 + 72y^5 - 356y^4 - 77y^3 - 70y^2 + 13y - 1)$ $\cdot (y^{13} + 69y^{12} + \cdots - 106496y - 65536)$
c_3, c_8, c_9	$(y^9 - 2y^8 - 5y^7 + 2y^6 + 11y^5 + 5y^4 - 8y^3 - 11y^2 - 5y - 1)$ $\cdot (y^{13} - 33y^{12} + \cdots + 5y - 1)$
c_4, c_{11}	$(y^9 + 2y^8 - y^7 - 5y^6 + 9y^5 + 9y^4 - y^3 - 6y^2 + 4y - 1)$ $\cdot (y^{13} + 27y^{12} + \cdots - 34y - 1)$
c_5	$(y^9 - y^8 + 4y^7 - 2y^6 + 2y^5 - 11y^4 - 6y^3 - 3y^2 - 2y - 1)$ $\cdot (y^{13} - 28y^{12} + \cdots - 83y - 36)$
c_7, c_{10}	$(y^9 + 8y^7 + \cdots + y - 1)(y^{13} + y^{12} + \cdots - y - 1)$