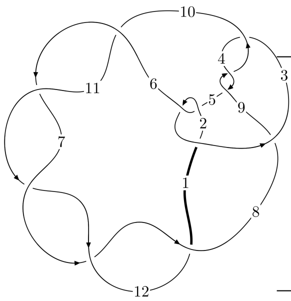
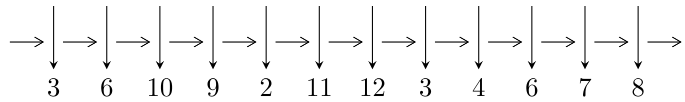
$12n_{0474}$ ($K12n_{0474}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned} I_1^u &= \langle -23u^{13} + 80u^{12} + \cdots + 26b - 109,\ 31u^{13} - 92u^{12} + \cdots + 78a + 269, \\ &\quad u^{14} - 2u^{13} - 10u^{12} + 20u^{11} + 38u^{10} - 77u^9 - 66u^8 + 147u^7 + 36u^6 - 140u^5 + 27u^4 + 57u^3 - 26u^2 - u + 3 \rangle \\ I_2^u &= \langle b,\ a - u + 1,\ u^2 - u - 1 \rangle \\ I_3^u &= \langle b + a + u + 1,\ a^2 + 2au + 2a + u + 4,\ u^2 + u - 1 \rangle \end{aligned}$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 20 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. $I_1^u = \langle -23u^{13} + 80u^{12} + \cdots + 26b - 109,\ 31u^{13} - 92u^{12} + \cdots + 78a + 269,\ u^{14} - 2u^{13} + \cdots - u + 3\rangle$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -0.397436u^{13} + 1.17949u^{12} + \cdots - 0.858974u - 3.44872 \\ 0.884615u^{13} - 3.07692u^{12} + \cdots - 2.34615u + 4.19231 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} 0.487179u^{13} - 1.89744u^{12} + \cdots - 3.20513u + 0.743590 \\ 0.884615u^{13} - 3.07692u^{12} + \cdots - 2.34615u + 4.19231 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.487179u^{13} - 1.89744u^{12} + \cdots - 3.20513u + 0.743590 \\ 0.346154u^{13} - 0.769231u^{12} + \cdots + 0.0384615u + 1.42308 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u^4 + 3u^2 - 1 \\ -u^6 + 4u^4 - 3u^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -1.10256u^{13} + 2.82051u^{12} + \cdots + 4.35897u - 2.05128 \\ 0.576923u^{13} - 0.615385u^{12} + \cdots - 0.269231u - 0.961538 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.474359u^{13} + 1.29487u^{12} + \cdots - 1.08974u + 0.512821 \\ -0.461538u^{13} + 1.69231u^{12} + \cdots + 4.61538u - 1.23077 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u^3 - 2u \\ u^5 - 3u^3 + u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{63}{13}u^{13} - \frac{179}{13}u^{12} - \frac{466}{13}u^{11} + 122u^{10} + \frac{977}{13}u^9 - \frac{5058}{13}u^8 + \frac{190}{13}u^7 + \frac{7016}{13}u^6 - \frac{3311}{13}u^5 - \frac{2929}{13}u^4 + \frac{2999}{13}u^3 - \frac{571}{13}u^2 + \frac{20}{13}u - \frac{105}{13}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{14} + 25u^{13} + \cdots + 2882u + 121$
c_2, c_5	$u^{14} + 3u^{13} + \cdots - 22u - 11$
c_3, c_4, c_9	$u^{14} - u^{13} + \cdots - 8u - 4$
c_6, c_7, c_{10} c_{11}, c_{12}	$u^{14} - 2u^{13} + \cdots - u + 3$
c_8	$u^{14} + u^{13} + \cdots - 560u - 100$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{14} - 65y^{13} + \cdots - 4823786y + 14641$
c_2, c_5	$y^{14} - 25y^{13} + \cdots - 2882y + 121$
c_3, c_4, c_9	$y^{14} + 9y^{13} + \cdots - 96y + 16$
c_6, c_7, c_{10} c_{11}, c_{12}	$y^{14} - 24y^{13} + \cdots - 157y + 9$
c_8	$y^{14} - 51y^{13} + \cdots - 79200y + 10000$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.099960+0.007934I$ $a=\ 0.373480+0.438522I$ $b=\ 0.255413-1.041350I$	$-1.42237+2.30354I$	$-14.5680-3.7918I$
$u=-1.099960-0.007934I$ $a=\ 0.373480-0.438522I$ $b=\ 0.255413+1.041350I$	$-1.42237-2.30354I$	$-14.5680+3.7918I$
$u=\ 0.698450+0.454350I$ $a=\ 0.59750-1.75057I$ $b=\ 0.525011+0.607663I$	$-3.03395-1.06008I$	$-15.9574+4.7668I$
$u=\ 0.698450-0.454350I$ $a=\ 0.59750+1.75057I$ $b=\ 0.525011-0.607663I$	$-3.03395+1.06008I$	$-15.9574-4.7668I$
$u=\ 0.374314+0.322623I$ $a=-1.30508+1.63203I$ $b=-0.001324-1.295280I$	$3.32563-1.11189I$	$-8.52416+6.18288I$
$u=\ 0.374314-0.322623I$ $a=-1.30508-1.63203I$ $b=-0.001324+1.295280I$	$3.32563+1.11189I$	$-8.52416-6.18288I$
$u=-1.45521+0.41134I$ $a=-0.39517-1.54570I$ $b=-0.742220+1.181770I$	$-10.11530+4.52944I$	$-16.6083-3.1417I$
$u=-1.45521-0.41134I$ $a=-0.39517+1.54570I$ $b=-0.742220-1.181770I$	$-10.11530-4.52944I$	$-16.6083+3.1417I$
$u=-0.298678$ $a=-0.459084$ $b=-0.324104$	-0.507849	-19.4340
$u=\ 1.73659+0.13204I$ $a=\ 0.081098-0.265527I$ $b=-0.786012+0.736054I$	$-11.60050+1.36524I$	$-17.2554-2.6511I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.73659 - 0.13204I$ $a = 0.081098 + 0.265527I$ $b = -0.786012 - 0.736054I$	$-11.60050 - 1.36524I$	$-17.2554 + 2.6511I$
$u = 1.88375 + 0.14746I$ $a = 0.37986 - 1.43767I$ $b = 0.67581 + 1.59079I$	$17.0667 - 7.6448I$	$-16.3310 + 2.7970I$
$u = 1.88375 - 0.14746I$ $a = 0.37986 + 1.43767I$ $b = 0.67581 - 1.59079I$	$17.0667 + 7.6448I$	$-16.3310 - 2.7970I$
$u = -1.97719$ $a = -0.337623$ $b = 1.47076$	12.0675	−18.0770

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

(i) Arc colorings

$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix} 1 \\ u+1 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -u \\ -u-1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u-1 \\ 0 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -u \\ -u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u-1 \\ 0 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u-1 \\ -u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0 \\ -u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} u-1 \\ 0 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -14$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2	$(u-1)^2$
c_3, c_4, c_8 c_9	u^2
c_5	$(u+1)^2$
c_6, c_7	u^2+u-1
c_{10}, c_{11}, c_{12}	u^2-u-1

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_5	$(y-1)^2$
c_3, c_4, c_8 c_9	y^2
c_6, c_7, c_{10} c_{11}, c_{12}	$y^2 - 3y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.618034$ $a = -1.61803$ $b = 0$	-2.63189	-14.0000
$u = 1.61803$ $a = 0.618034$ $b = 0$	-10.5276	-14.0000

III. $\boldsymbol{I_3^u = \langle b + a + u + 1,\ a^2 + 2au + 2a + u + 4,\ u^2 + u - 1\rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ -u + 1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u \\ -u + 1 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} a \\ -a - u - 1 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u - 1 \\ -a - u - 1 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -u - 1 \\ -a - 1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u + 1 \\ a + u + 1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -au - a - u - 3 \\ 2 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -16$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5	$(u-1)^4$
c_2	$(u+1)^4$
c_3, c_4, c_8 c_9	$(u^2+2)^2$
c_6, c_7	$(u^2-u-1)^2$
c_{10}, c_{11}, c_{12}	$(u^2+u-1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_5	$(y-1)^4$
c_3, c_4, c_8 c_9	$(y+2)^4$
c_6, c_7, c_{10} c_{11}, c_{12}	$(y^2-3y+1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.618034$ $a = -1.61803 + 1.41421I$ $b = - 1.414210I$	2.30291	−16.0000
$u = 0.618034$ $a = -1.61803 - 1.41421I$ $b = 1.414210I$	2.30291	−16.0000
$u = -1.61803$ $a = 0.61803 + 1.41421I$ $b = - 1.414210I$	−5.59278	−16.0000
$u = -1.61803$ $a = 0.61803 - 1.41421I$ $b = 1.414210I$	−5.59278	−16.0000

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^6)(u^{14}+25u^{13}+\cdots+2882u+121)$
c_2	$((u-1)^2)(u+1)^4(u^{14}+3u^{13}+\cdots-22u-11)$
c_3, c_4, c_9	$u^2(u^2+2)^2(u^{14}-u^{13}+\cdots-8u-4)$
c_5	$((u-1)^4)(u+1)^2(u^{14}+3u^{13}+\cdots-22u-11)$
c_6, c_7	$((u^2-u-1)^2)(u^2+u-1)(u^{14}-2u^{13}+\cdots-u+3)$
c_8	$u^2(u^2+2)^2(u^{14}+u^{13}+\cdots-560u-100)$
c_{10}, c_{11}, c_{12}	$(u^2-u-1)(u^2+u-1)^2(u^{14}-2u^{13}+\cdots-u+3)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^6)(y^{14}-65y^{13}+\cdots-4823786y+14641)$
c_2, c_5	$((y-1)^6)(y^{14}-25y^{13}+\cdots-2882y+121)$
c_3, c_4, c_9	$y^2(y+2)^4(y^{14}+9y^{13}+\cdots-96y+16)$
c_6, c_7, c_{10} c_{11}, c_{12}	$((y^2-3y+1)^3)(y^{14}-24y^{13}+\cdots-157y+9)$
c_8	$y^2(y+2)^4(y^{14}-51y^{13}+\cdots-79200y+10000)$