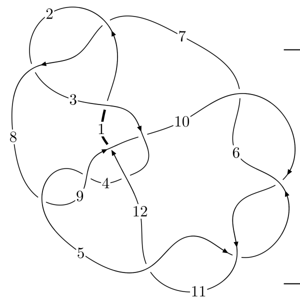
$12n_{0644}$ ($K12n_{0644}$)



A knot diagram[1]

Linearized knot diagam

$\rightarrow\downarrow\rightarrow\downarrow\rightarrow\downarrow\rightarrow\downarrow\rightarrow\downarrow\rightarrow\downarrow\rightarrow\downarrow\rightarrow\downarrow\rightarrow\downarrow\rightarrow\downarrow\rightarrow\downarrow\rightarrow\downarrow\rightarrow$

3 8 12 9 11 10 2 5 3 6 5 9

Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle &-9649326548650u^{14} + 50820393580641u^{13} + \cdots + 8719913306612b + 276658983707276, \\
&- 98118943388815u^{14} + 517725352137249u^{13} + \cdots + 1743982661224a + 2846447135872992, \\
&u^{15} - 5u^{14} + \cdots - 36u - 8\rangle \\
I_2^u = \langle &37u^{11} - 4u^{10} - 19u^9 - 51u^8 - 94u^7 + 35u^6 + 152u^5 - 47u^4 + 184u^3 - 53u^2 + 86b - 97u - 25, \\
&11u^{11} - 7u^{10} - u^9 - 14u^8 - 14u^7 + 29u^6 + 51u^5 - 7u^4 + 64u^3 - 82u^2 + 43a - 30u - 76, \\
&u^{12} + u^{11} + u^{10} - 3u^8 - 3u^7 - u^6 - 3u^5 + 3u^4 + u^3 - 1\rangle
\end{aligned}$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 27 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. $\boldsymbol{I_1^u = \langle -9.65 \times 10^{12}u^{14} + 5.08 \times 10^{13}u^{13} + \cdots + 8.72 \times 10^{11}b + 2.77 \times 10^{14},\ -9.81 \times 10^{13}u^{14} + 5.18 \times 10^{14}u^{13} + \cdots + 1.74 \times 10^{12}a + 2.85 \times 10^{15},\ u^{15} - 5u^{14} + \cdots - 36u - 8\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_9 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_4 = \begin{pmatrix}1\\-u^2\end{pmatrix}$$
$$a_1 = \begin{pmatrix}56.2614u^{14} - 296.864u^{13} + \cdots - 1427.56u - 1632.15\\11.0659u^{14} - 58.2808u^{13} + \cdots - 271.998u - 317.273\end{pmatrix}$$
$$a_8 = \begin{pmatrix}u\\u\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}56.2614u^{14} - 296.864u^{13} + \cdots - 1427.56u - 1632.15\\6.82466u^{14} - 35.8416u^{13} + \cdots - 162.048u - 192.819\end{pmatrix}$$
$$a_3 = \begin{pmatrix}-64.6576u^{14} + 341.081u^{13} + \cdots + 1634.51u + 1875.21\\-3.15293u^{14} + 16.6942u^{13} + \cdots + 82.5222u + 92.8366\end{pmatrix}$$
$$a_2 = \begin{pmatrix}-59.9171u^{14} + 316.162u^{13} + \cdots + 1519.44u + 1740.30\\1.58748u^{14} - 8.22498u^{13} + \cdots - 32.5463u - 42.0757\end{pmatrix}$$
$$a_7 = \begin{pmatrix}-69.1241u^{14} + 364.539u^{13} + \cdots + 1748.19u + 2001.69\\-2.05249u^{14} + 10.7120u^{13} + \cdots + 51.5981u + 57.9377\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}63.0861u^{14} - 332.705u^{13} + \cdots - 1589.61u - 1824.97\\6.82466u^{14} - 35.8416u^{13} + \cdots - 162.048u - 192.819\end{pmatrix}$$
$$a_6 = \begin{pmatrix}31.2918u^{14} - 165.106u^{13} + \cdots - 792.337u - 906.764\\0.796083u^{14} - 4.30252u^{13} + \cdots - 26.8018u - 26.2397\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}81.7883u^{14} - 431.479u^{13} + \cdots - 2072.39u - 2372.03\\7.57555u^{14} - 40.0591u^{13} + \cdots - 195.899u - 222.593\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= \frac{23777727583517}{217997832653}u^{14} - \frac{125538144456213}{217997832653}u^{13} + \cdots - \frac{6054279610306 06}{217997832653}u - \frac{696103351358110}{217997832653}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{15} + 23u^{14} + \cdots + 6467u + 961$
c_2, c_7	$u^{15} + u^{14} + \cdots + 71u + 31$
c_3	$u^{15} - 4u^{14} + \cdots + 312u + 49$
c_4, c_8	$u^{15} - 5u^{14} + \cdots - 36u - 8$
c_5, c_6, c_{10} c_{11}	$u^{15} + u^{14} + \cdots - 6u - 1$
c_9	$u^{15} - u^{14} + \cdots - 167u - 151$
c_{12}	$u^{15} + 3u^{14} + \cdots - 10u - 4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{15} - 51y^{14} + \cdots + 52633339y - 923521$
c_2, c_7	$y^{15} - 23y^{14} + \cdots + 6467y - 961$
c_3	$y^{15} - 36y^{14} + \cdots + 43640y - 2401$
c_4, c_8	$y^{15} - 27y^{14} + \cdots + 1936y - 64$
c_5, c_6, c_{10} c_{11}	$y^{15} + 11y^{14} + \cdots + 18y - 1$
c_9	$y^{15} - 41y^{14} + \cdots + 123925y - 22801$
c_{12}	$y^{15} - 25y^{14} + \cdots + 428y - 16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.923660+0.494347I$ $a=-1.70164+0.17855I$ $b=-0.448573+0.379515I$	$-2.23565+4.29534I$	$-10.91630-6.10915I$
$u=-0.923660-0.494347I$ $a=-1.70164-0.17855I$ $b=-0.448573-0.379515I$	$-2.23565-4.29534I$	$-10.91630+6.10915I$
$u=-0.091749+1.089930I$ $a=\ \ 0.084694-0.589048I$ $b=-0.422185+0.856949I$	$2.00776+2.59269I$	$-13.6766-6.5009I$
$u=-0.091749-1.089930I$ $a=\ \ 0.084694+0.589048I$ $b=-0.422185-0.856949I$	$2.00776-2.59269I$	$-13.6766+6.5009I$
$u=\ \ 1.049060+0.386860I$ $a=-0.493644+0.394908I$ $b=-0.75538+1.81023I$	$9.65742+0.83037I$	$-11.42036-0.07756I$
$u=\ \ 1.049060-0.386860I$ $a=-0.493644-0.394908I$ $b=-0.75538-1.81023I$	$9.65742-0.83037I$	$-11.42036+0.07756I$
$u=\ \ 0.824524+0.143621I$ $a=\ \ 0.906560+0.197657I$ $b=\ \ 0.295936-0.760130I$	$2.39036-1.70688I$	$-6.78199+3.68703I$
$u=\ \ 0.824524-0.143621I$ $a=\ \ 0.906560-0.197657I$ $b=\ \ 0.295936+0.760130I$	$2.39036+1.70688I$	$-6.78199-3.68703I$
$u=-0.275761$ $a=\ \ 7.05043$ $b=\ \ 0.964667$	-7.21918	-7.10970
$u=-0.275217$ $a=\ \ 0.940995$ $b=-0.225404$	-0.524379	-18.9810

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 2.11029 + 0.07886I$ $a = -0.765111 - 0.046752I$ $b = -2.21963 - 1.07578I$	$-5.55478 + 1.31578I$	$-12.00000 - 1.63162I$
$u = 2.11029 - 0.07886I$ $a = -0.765111 + 0.046752I$ $b = -2.21963 + 1.07578I$	$-5.55478 - 1.31578I$	$-12.00000 + 1.63162I$
$u = -1.95045 + 1.42970I$ $a = 0.695006 + 0.403378I$ $b = 2.77095 - 1.36080I$	$-14.3627 + 9.6247I$	$-10.73924 - 3.33714I$
$u = -1.95045 - 1.42970I$ $a = 0.695006 - 0.403378I$ $b = 2.77095 + 1.36080I$	$-14.3627 - 9.6247I$	$-10.73924 + 3.33714I$
$u = 3.51497$ $a = 0.556839$ $b = 4.81849$	19.0038	0

II. $\boldsymbol{I_2^u =}$
$\boldsymbol{\langle 37u^{11} - 4u^{10} + \cdots + 86b - 25,\ 11u^{11} - 7u^{10} + \cdots + 43a - 76,\ u^{12} + u^{11} + \cdots + u^3 - 1\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -0.255814u^{11} + 0.162791u^{10} + \cdots + 0.697674u + 1.76744 \\ -0.430233u^{11} + 0.0465116u^{10} + \cdots + 1.12791u + 0.290698 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -0.255814u^{11} + 0.162791u^{10} + \cdots + 0.697674u + 1.76744 \\ -0.290698u^{11} + 0.139535u^{10} + \cdots + 1.38372u - 0.127907 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u^{10} - u^9 - u^8 + 3u^6 + 3u^5 + u^4 + 3u^3 - 3u^2 - u \\ -0.430233u^{11} - 0.953488u^{10} + \cdots + 0.127907u + 1.29070 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 0.174419u^{11} - 0.883721u^{10} + \cdots - 1.43023u + 0.476744 \\ -0.255814u^{11} - 0.837209u^{10} + \cdots - 0.302326u + 1.76744 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1.34884u^{11} + 1.23256u^{10} + \cdots + 0.139535u + 0.953488 \\ -0.127907u^{11} - 0.418605u^{10} + \cdots - 1.15116u + 1.38372 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -0.546512u^{11} + 0.302326u^{10} + \cdots + 2.08140u + 1.63953 \\ -0.290698u^{11} + 0.139535u^{10} + \cdots + 1.38372u - 0.127907 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0.197674u^{11} + 1.46512u^{10} + \cdots + 0.779070u - 1.59302 \\ -0.290698u^{11} + 0.139535u^{10} + \cdots - 0.616279u - 2.12791 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u^9 - u^8 - u^7 + 3u^5 + 3u^4 + u^3 + 3u^2 - 3u - 1 \\ 1.29070u^{11} + 0.860465u^{10} + \cdots - 1.38372u + 0.127907 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes
$= \frac{121}{43}u^{11} - \frac{34}{43}u^{10} - \frac{11}{43}u^9 - \frac{154}{43}u^8 - \frac{326}{43}u^7 + \frac{147}{43}u^6 + \frac{346}{43}u^5 - \frac{206}{43}u^4 + \frac{747}{43}u^3 - \frac{558}{43}u^2 - \frac{115}{43}u - \frac{492}{43}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{12} - 10u^{11} + \cdots - 13u + 1$
c_2	$u^{12} - 5u^{10} + u^9 + 11u^8 - 4u^7 - 15u^6 + 6u^5 + 13u^4 - 5u^3 - 6u^2 + u + 1$
c_3	$u^{12} + 3u^{11} + 3u^{10} + u^9 - 3u^8 - 6u^7 - u^6 + 4u^5 + 4u^4 + u^3 - 3u^2 - 2u - 1$
c_4	$u^{12} + u^{11} + u^{10} - 3u^8 - 3u^7 - u^6 - 3u^5 + 3u^4 + u^3 - 1$
c_5, c_6	$u^{12} + 8u^{10} + 24u^8 + 32u^6 + u^5 + 15u^4 + 3u^3 - 2u^2 + 2u - 1$
c_7	$u^{12} - 5u^{10} - u^9 + 11u^8 + 4u^7 - 15u^6 - 6u^5 + 13u^4 + 5u^3 - 6u^2 - u + 1$
c_8	$u^{12} - u^{11} + u^{10} - 3u^8 + 3u^7 - u^6 + 3u^5 + 3u^4 - u^3 - 1$
c_9	$u^{12} - u^9 - 3u^8 + 3u^7 + u^6 + 3u^5 + 3u^4 - u^2 - u - 1$
c_{10}, c_{11}	$u^{12} + 8u^{10} + 24u^8 + 32u^6 - u^5 + 15u^4 - 3u^3 - 2u^2 - 2u - 1$
c_{12}	$u^{12} - 4u^{11} + \cdots + 10u + 4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{12} - 6y^{11} + \cdots - 25y + 1$
c_2, c_7	$y^{12} - 10y^{11} + \cdots - 13y + 1$
c_3	$y^{12} - 3y^{11} + \cdots + 2y + 1$
c_4, c_8	$y^{12} + y^{11} - 5y^{10} - 2y^9 + 19y^8 + y^7 - 37y^6 - 11y^5 + 21y^4 + y^3 - 6y^2 + 1$
c_5, c_6, c_{10} c_{11}	$y^{12} + 16y^{11} + \cdots - 38y^2 + 1$
c_9	$y^{12} - 6y^{10} + y^9 + 21y^8 - 11y^7 - 37y^6 + y^5 + 19y^4 - 2y^3 - 5y^2 + y + 1$
c_{12}	$y^{12} - 20y^{11} + \cdots - 44y + 16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.197166 + 1.055630I$ $a = 0.269314 + 0.350716I$ $b = -0.297880 - 0.774287I$	$2.52801 - 2.27257I$	$-2.24792 + 0.35874I$
$u = 0.197166 - 1.055630I$ $a = 0.269314 - 0.350716I$ $b = -0.297880 + 0.774287I$	$2.52801 + 2.27257I$	$-2.24792 - 0.35874I$
$u = 0.699703 + 0.248857I$ $a = 2.79474 + 0.04243I$ $b = 0.854478 - 0.422647I$	$-2.92889 - 3.37800I$	$-15.0144 + 0.9526I$
$u = 0.699703 - 0.248857I$ $a = 2.79474 - 0.04243I$ $b = 0.854478 + 0.422647I$	$-2.92889 + 3.37800I$	$-15.0144 - 0.9526I$
$u = 1.26306$ $a = -1.13258$ $b = -1.43639$	-4.03974	-8.57740
$u = -0.721730$ $a = 3.00075$ $b = 0.973015$	-7.69678	-24.7790
$u = -0.154674 + 0.692367I$ $a = 0.726797 + 0.523291I$ $b = -0.171464 + 1.286840I$	$10.64100 + 1.46286I$	$-4.09278 - 4.80437I$
$u = -0.154674 - 0.692367I$ $a = 0.726797 - 0.523291I$ $b = -0.171464 - 1.286840I$	$10.64100 - 1.46286I$	$-4.09278 + 4.80437I$
$u = -1.246550 + 0.486161I$ $a = -1.067620 - 0.103337I$ $b = -1.343420 - 0.224193I$	$0.66596 + 2.08092I$	$-11.59767 - 2.54425I$
$u = -1.246550 - 0.486161I$ $a = -1.067620 + 0.103337I$ $b = -1.343420 + 0.224193I$	$0.66596 - 2.08092I$	$-11.59767 + 2.54425I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.266310 + 1.357680I$ $a = -0.157319 - 0.900117I$ $b = -0.310027 + 0.519410I$	$4.83179 + 2.98242I$	$-8.86878 - 3.33225I$
$u = -0.266310 - 1.357680I$ $a = -0.157319 + 0.900117I$ $b = -0.310027 - 0.519410I$	$4.83179 - 2.98242I$	$-8.86878 + 3.33225I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^{12}-10u^{11}+\cdots-13u+1)(u^{15}+23u^{14}+\cdots+6467u+961)$
c_2	$(u^{12}-5u^{10}+u^9+11u^8-4u^7-15u^6+6u^5+13u^4-5u^3-6u^2+u+1)$ $\cdot(u^{15}+u^{14}+\cdots+71u+31)$
c_3	$(u^{12}+3u^{11}+3u^{10}+u^9-3u^8-6u^7-u^6+4u^5+4u^4+u^3-3u^2-2u-1)$ $\cdot(u^{15}-4u^{14}+\cdots+312u+49)$
c_4	$(u^{12}+u^{11}+u^{10}-3u^8-3u^7-u^6-3u^5+3u^4+u^3-1)$ $\cdot(u^{15}-5u^{14}+\cdots-36u-8)$
c_5, c_6	$(u^{12}+8u^{10}+24u^8+32u^6+u^5+15u^4+3u^3-2u^2+2u-1)$ $\cdot(u^{15}+u^{14}+\cdots-6u-1)$
c_7	$(u^{12}-5u^{10}-u^9+11u^8+4u^7-15u^6-6u^5+13u^4+5u^3-6u^2-u+1)$ $\cdot(u^{15}+u^{14}+\cdots+71u+31)$
c_8	$(u^{12}-u^{11}+u^{10}-3u^8+3u^7-u^6+3u^5+3u^4-u^3-1)$ $\cdot(u^{15}-5u^{14}+\cdots-36u-8)$
c_9	$(u^{12}-u^9-3u^8+3u^7+u^6+3u^5+3u^4-u^2-u-1)$ $\cdot(u^{15}-u^{14}+\cdots-167u-151)$
c_{10}, c_{11}	$(u^{12}+8u^{10}+24u^8+32u^6-u^5+15u^4-3u^3-2u^2-2u-1)$ $\cdot(u^{15}+u^{14}+\cdots-6u-1)$
c_{12}	$(u^{12}-4u^{11}+\cdots+10u+4)(u^{15}+3u^{14}+\cdots-10u-4)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^{12} - 6y^{11} + \cdots - 25y + 1)$ $\cdot (y^{15} - 51y^{14} + \cdots + 52633339y - 923521)$
c_2, c_7	$(y^{12} - 10y^{11} + \cdots - 13y + 1)(y^{15} - 23y^{14} + \cdots + 6467y - 961)$
c_3	$(y^{12} - 3y^{11} + \cdots + 2y + 1)(y^{15} - 36y^{14} + \cdots + 43640y - 2401)$
c_4, c_8	$(y^{12} + y^{11} - 5y^{10} - 2y^9 + 19y^8 + y^7 - 37y^6 - 11y^5 + 21y^4 + y^3 - 6y^2 + 1)$ $\cdot (y^{15} - 27y^{14} + \cdots + 1936y - 64)$
c_5, c_6, c_{10} c_{11}	$(y^{12} + 16y^{11} + \cdots - 38y^2 + 1)(y^{15} + 11y^{14} + \cdots + 18y - 1)$
c_9	$(y^{12} - 6y^{10} + y^9 + 21y^8 - 11y^7 - 37y^6 + y^5 + 19y^4 - 2y^3 - 5y^2 + y + 1)$ $\cdot (y^{15} - 41y^{14} + \cdots + 123925y - 22801)$
c_{12}	$(y^{12} - 20y^{11} + \cdots - 44y + 16)(y^{15} - 25y^{14} + \cdots + 428y - 16)$