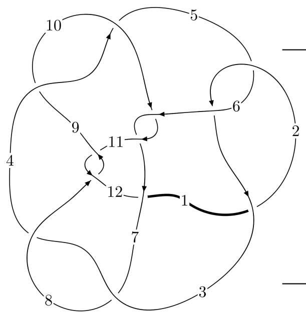
$12n_{0374}$ ($K12n_{0374}$)



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 6 8 10 2 11 3 12 4 6 9 7

Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & -3011493065473334u^{15} - 405785743495567u^{14} + \cdots + 5460935417391053b - 2324129620964575, \\
& 2521976827730410u^{15} + 4134029936992622u^{14} + \cdots + 5460935417391053a - 8351550389039156, \\
& u^{16} + 2u^{15} + \cdots + u - 1\rangle \\
I_2^u = \langle & u^9 + u^8 - 2u^7 + 2u^6 + 3u^5 - 6u^4 + 2u^2 + b - 2u - 1, \\
& u^{10} - 4u^8 + 2u^7 + 4u^6 - 6u^5 + u^4 + 4u^3 - u^2 + a - u + 1, \\
& u^{11} + u^{10} - 3u^9 + 5u^7 - 4u^6 - 4u^5 + 4u^4 + u^3 - 3u^2 + 1\rangle
\end{aligned}$$

* 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.

$\boldsymbol{I_1^u = \langle -3.01\times10^{14}u^{15} - 4.06\times10^{14}u^{14} + \cdots + 5.46\times10^{15}b - 2.32\times10^{15},\ 2.52\times10^{15}u^{15} + 4.13\times10^{15}u^{14} + \cdots + 5.46\times10^{15}a - 8.35\times10^{15},\ u^{16} + 2u^{15} + \cdots + u - 1\rangle}$

(i) Arc colorings

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

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

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

$$a_3 = \begin{pmatrix} -0.461821u^{15} - 0.757019u^{14} + \cdots + 1.13267u + 1.52933 \\ 0.0551461u^{15} + 0.0743070u^{14} + \cdots - 1.30799u + 0.425592 \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} -1.16646u^{15} - 2.14400u^{14} + \cdots - 0.648553u + 1.23228 \\ 0.142447u^{15} + 0.241985u^{14} + \cdots - 2.03492u + 0.447884 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.461821u^{15} - 0.757019u^{14} + \cdots + 1.13267u + 1.52933 \\ 0.0215283u^{15} + 0.0644709u^{14} + \cdots - 0.679549u + 0.258968 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 1.49486u^{15} + 2.51422u^{14} + \cdots - 4.17011u - 0.263898 \\ -0.226698u^{15} - 0.0915071u^{14} + \cdots + 4.12577u - 0.807954 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 1.28737u^{15} + 2.32151u^{14} + \cdots - 1.70682u - 1.04336 \\ -0.120918u^{15} - 0.177515u^{14} + \cdots + 2.35537u - 0.188916 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1.16646u^{15} + 2.14400u^{14} + \cdots + 0.648553u - 1.23228 \\ -0.120918u^{15} - 0.177515u^{14} + \cdots + 2.35537u - 0.188916 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.802633u^{15} + 1.98845u^{14} + \cdots + 8.96383u - 3.11463 \\ -0.352889u^{15} - 0.635726u^{14} + \cdots + 0.487447u + 0.504102 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 1.38603u^{15} + 2.45156u^{14} + \cdots - 2.59193u - 0.500660 \\ -0.149090u^{15} - 0.0711014u^{14} + \cdots + 2.28378u - 0.416208 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes

$$= -\frac{9739656845787569}{5460935417391053}u^{15} - \frac{17595322506035493}{5460935417391053}u^{14} + \cdots + \frac{16486080638841760}{5460935417391053}u - \frac{93508315704564998}{5460935417391053}$$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{16} - 22u^{15} + \cdots + 28u + 1$
c_2, c_5	$u^{16} + 4u^{15} + \cdots - 2u - 1$
c_3, c_7	$u^{16} - 14u^{15} + \cdots + 152u^2 - 32$
c_4, c_9	$u^{16} + u^{15} + \cdots - 184u - 85$
c_6, c_{10}	$u^{16} - 2u^{15} + \cdots - u - 1$
c_8, c_{11}	$u^{16} - 2u^{15} + \cdots + 2u + 1$
c_{12}	$u^{16} + 8u^{15} + \cdots - 17328u - 2417$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{16} + 14y^{15} + \cdots - 540y + 1$
c_2, c_5	$y^{16} + 22y^{15} + \cdots - 28y + 1$
c_3, c_7	$y^{16} - 14y^{15} + \cdots - 9728y + 1024$
c_4, c_9	$y^{16} + 15y^{15} + \cdots - 36576y + 7225$
c_6, c_{10}	$y^{16} + 20y^{15} + \cdots - 9y + 1$
c_8, c_{11}	$y^{16} + 10y^{15} + \cdots - 14y + 1$
c_{12}	$y^{16} + 38y^{15} + \cdots - 113705856y + 5841889$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.709961 + 0.302018I$ $a = 0.067289 - 0.371265I$ $b = -1.56748 + 0.56103I$	$-2.10600 - 5.42693I$	$-16.6708 + 2.3025I$
$u = 0.709961 - 0.302018I$ $a = 0.067289 + 0.371265I$ $b = -1.56748 - 0.56103I$	$-2.10600 + 5.42693I$	$-16.6708 - 2.3025I$
$u = -0.624053 + 0.414470I$ $a = 0.036931 + 0.619361I$ $b = -0.268149 + 0.147042I$	$2.12989 + 2.00985I$	$-8.08247 - 3.69887I$
$u = -0.624053 - 0.414470I$ $a = 0.036931 - 0.619361I$ $b = -0.268149 - 0.147042I$	$2.12989 - 2.00985I$	$-8.08247 + 3.69887I$
$u = -0.603403$ $a = 0.346440$ $b = 1.97720$	-5.59033	-13.4830
$u = 0.365789 + 0.462196I$ $a = 0.36041 - 1.55398I$ $b = 0.667180 + 0.526239I$	$-0.228166 + 0.909617I$	$-12.89785 - 1.13498I$
$u = 0.365789 - 0.462196I$ $a = 0.36041 + 1.55398I$ $b = 0.667180 - 0.526239I$	$-0.228166 - 0.909617I$	$-12.89785 + 1.13498I$
$u = -0.222804 + 0.369878I$ $a = 1.57769 + 3.86659I$ $b = 0.82840 - 1.19204I$	$-8.61028 - 1.60803I$	$-19.3772 + 7.1837I$
$u = -0.222804 - 0.369878I$ $a = 1.57769 - 3.86659I$ $b = 0.82840 + 1.19204I$	$-8.61028 + 1.60803I$	$-19.3772 - 7.1837I$
$u = 0.325252$ $a = 0.778005$ $b = 0.326406$	-0.534698	-18.5610

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.14699+2.11502I$ $a = 1.050490+0.062469I$ $b = -5.41647+5.13168I$	$5.95217-5.11511I$	$-14.9917+2.0744I$
$u = 1.14699-2.11502I$ $a = 1.050490-0.062469I$ $b = -5.41647-5.13168I$	$5.95217+5.11511I$	$-14.9917-2.0744I$
$u = -0.86624+2.26332I$ $a = -1.018240+0.164220I$ $b = 6.83232+3.44115I$	$10.23600+0.21137I$	$-11.36887+0.55661I$
$u = -0.86624-2.26332I$ $a = -1.018240-0.164220I$ $b = 6.83232-3.44115I$	$10.23600-0.21137I$	$-11.36887-0.55661I$
$u = -1.37057+2.24654I$ $a = -1.136800+0.049742I$ $b = 5.77240+7.05674I$	$9.6708+10.3555I$	$-12.00000-4.83541I$
$u = -1.37057-2.24654I$ $a = -1.136800-0.049742I$ $b = 5.77240-7.05674I$	$9.6708-10.3555I$	$-12.00000+4.83541I$

II.

$$\boldsymbol{I^u_2 = \langle u^9 + u^8 + \cdots + b - 1,\ u^{10} - 4u^8 + \cdots + a + 1,\ u^{11} + u^{10} + \cdots - 3u^2 + 1\rangle}$$

(i) Arc colorings

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

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

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

$$a_3 = \begin{pmatrix} -u^{10} + 4u^8 - 2u^7 - 4u^6 + 6u^5 - u^4 - 4u^3 + u^2 + u - 1 \\ -u^9 - u^8 + 2u^7 - 2u^6 - 3u^5 + 6u^4 - 2u^2 + 2u + 1 \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} -u^9 - u^8 + 3u^7 - 5u^5 + 3u^4 + 3u^3 - 2u^2 - u + 1 \\ 2u^9 + 2u^8 - 5u^7 + 6u^5 - 6u^4 - 3u^3 + 2u^2 - u - 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -u^{10} + 4u^8 - 2u^7 - 4u^6 + 6u^5 - u^4 - 4u^3 + u^2 + u - 1 \\ -2u^9 - 2u^8 + 5u^7 - u^6 - 7u^5 + 8u^4 + 3u^3 - 4u^2 + u + 2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^9 + u^8 - 3u^7 - u^6 + 4u^5 - u^4 - 2u^3 \\ -2u^9 - 3u^8 + 4u^7 + 3u^6 - 4u^5 + 2u^4 + u^3 + u^2 + u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} u^9 + u^8 - 3u^7 - u^6 + 4u^5 - u^4 - 3u^3 + 2u \\ u^6 + u^5 - 2u^4 + 2u^2 - u - 1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u^9 + u^8 - 3u^7 + 5u^5 - 3u^4 - 3u^3 + 2u^2 + u - 1 \\ u^6 + u^5 - 2u^4 + 2u^2 - u - 1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u^8 + u^7 - 3u^6 - 2u^5 + 3u^4 - 3u^2 + 2 \\ u^{10} + u^9 - 3u^8 - u^7 + 4u^6 - 2u^5 - 3u^4 + 2u^3 - u \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} u^4 - 2u^2 + 1 \\ -u^9 - u^8 + 2u^7 - 2u^5 + 2u^4 + u^2 + u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes
$= 4u^{10} + 10u^9 - 2u^8 - 14u^7 + 9u^6 + 15u^5 - 26u^4 - 23u^3 + 22u^2 - 2u - 29$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{11} - 9u^{10} + \cdots + 5u - 1$
c_2	$u^{11} + 3u^{10} - 6u^8 - 2u^7 + 2u^6 + 3u^5 + 4u^4 + 2u^3 - 2u^2 - 3u - 1$
c_3	$u^{11} + 2u^{10} + \cdots - 5u + 1$
c_4	$u^{11} - 4u^9 - 6u^8 + 10u^7 + 23u^6 - 10u^5 - 23u^4 - 2u^3 + 16u^2 - 3u - 1$
c_5	$u^{11} - 3u^{10} + 6u^8 - 2u^7 - 2u^6 + 3u^5 - 4u^4 + 2u^3 + 2u^2 - 3u + 1$
c_6	$u^{11} - u^{10} - 3u^9 + 5u^7 + 4u^6 - 4u^5 - 4u^4 + u^3 + 3u^2 - 1$
c_7	$u^{11} - 2u^{10} + \cdots - 5u - 1$
c_8	$u^{11} - 3u^{10} + \cdots - u + 1$
c_9	$u^{11} - 4u^9 + 6u^8 + 10u^7 - 23u^6 - 10u^5 + 23u^4 - 2u^3 - 16u^2 - 3u + 1$
c_{10}	$u^{11} + u^{10} - 3u^9 + 5u^7 - 4u^6 - 4u^5 + 4u^4 + u^3 - 3u^2 + 1$
c_{11}	$u^{11} + 3u^{10} + \cdots - u - 1$
c_{12}	$u^{11} - 7u^{10} + \cdots - 85u + 29$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{11} - 17y^{10} + \cdots + 9y - 1$
c_2, c_5	$y^{11} - 9y^{10} + \cdots + 5y - 1$
c_3, c_7	$y^{11} - 14y^{10} + \cdots + 21y - 1$
c_4, c_9	$y^{11} - 8y^{10} + \cdots + 41y - 1$
c_6, c_{10}	$y^{11} - 7y^{10} + \cdots + 6y - 1$
c_8, c_{11}	$y^{11} + 7y^{10} + \cdots + 3y - 1$
c_{12}	$y^{11} - 21y^{10} + \cdots + 10821y - 841$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.636123 + 0.670136I$ $a = 1.114440 - 0.543604I$ $b = -0.780678 + 0.831560I$	$1.01561 - 3.68794I$	$-9.46045 + 4.33638I$
$u = 0.636123 - 0.670136I$ $a = 1.114440 + 0.543604I$ $b = -0.780678 - 0.831560I$	$1.01561 + 3.68794I$	$-9.46045 - 4.33638I$
$u = 0.579598 + 0.909451I$ $a = -0.53978 + 1.76442I$ $b = -1.78870 - 1.78170I$	$-8.26462 + 1.07707I$	$-11.60559 + 3.04504I$
$u = 0.579598 - 0.909451I$ $a = -0.53978 - 1.76442I$ $b = -1.78870 + 1.78170I$	$-8.26462 - 1.07707I$	$-11.60559 - 3.04504I$
$u = 1.16659$ $a = -0.621653$ $b = -1.35028$	-8.04334	-20.3040
$u = -0.693012 + 0.407011I$ $a = 0.911623 - 0.220211I$ $b = -2.23098 - 0.93364I$	$-1.97384 + 6.11246I$	$-15.4629 - 13.1582I$
$u = -0.693012 - 0.407011I$ $a = 0.911623 + 0.220211I$ $b = -2.23098 + 0.93364I$	$-1.97384 - 6.11246I$	$-15.4629 + 13.1582I$
$u = -0.733849$ $a = -1.28586$ $b = 0.269849$	-2.65454	-14.9220
$u = 0.710299$ $a = -0.858009$ $b = 2.21118$	-6.08165	-31.1290
$u = -1.59423 + 0.15020I$ $a = -0.103519 + 0.553154I$ $b = 0.73498 + 1.21716I$	$-5.41647 - 2.99510I$	$-12.79336 + 4.15050I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.59423 - 0.15020I$ $a = -0.103519 - 0.553154I$ $b = \ \ 0.73498 - 1.21716I$	$-5.41647 + 2.99510I$	$-12.79336 - 4.15050I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^{11}-9u^{10}+\cdots+5u-1)(u^{16}-22u^{15}+\cdots+28u+1)$
c_2	$(u^{11}+3u^{10}-6u^8-2u^7+2u^6+3u^5+4u^4+2u^3-2u^2-3u-1)$ $\cdot(u^{16}+4u^{15}+\cdots-2u-1)$
c_3	$(u^{11}+2u^{10}+\cdots-5u+1)(u^{16}-14u^{15}+\cdots+152u^2-32)$
c_4	$(u^{11}-4u^9-6u^8+10u^7+23u^6-10u^5-23u^4-2u^3+16u^2-3u-1)$ $\cdot(u^{16}+u^{15}+\cdots-184u-85)$
c_5	$(u^{11}-3u^{10}+6u^8-2u^7-2u^6+3u^5-4u^4+2u^3+2u^2-3u+1)$ $\cdot(u^{16}+4u^{15}+\cdots-2u-1)$
c_6	$(u^{11}-u^{10}-3u^9+5u^7+4u^6-4u^5-4u^4+u^3+3u^2-1)$ $\cdot(u^{16}-2u^{15}+\cdots-u-1)$
c_7	$(u^{11}-2u^{10}+\cdots-5u-1)(u^{16}-14u^{15}+\cdots+152u^2-32)$
c_8	$(u^{11}-3u^{10}+\cdots-u+1)(u^{16}-2u^{15}+\cdots+2u+1)$
c_9	$(u^{11}-4u^9+6u^8+10u^7-23u^6-10u^5+23u^4-2u^3-16u^2-3u+1)$ $\cdot(u^{16}+u^{15}+\cdots-184u-85)$
c_{10}	$(u^{11}+u^{10}-3u^9+5u^7-4u^6-4u^5+4u^4+u^3-3u^2+1)$ $\cdot(u^{16}-2u^{15}+\cdots-u-1)$
c_{11}	$(u^{11}+3u^{10}+\cdots-u-1)(u^{16}-2u^{15}+\cdots+2u+1)$
c_{12}	$(u^{11}-7u^{10}+\cdots-85u+29)(u^{16}+8u^{15}+\cdots-17328u-2417)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^{11} - 17y^{10} + \cdots + 9y - 1)(y^{16} + 14y^{15} + \cdots - 540y + 1)$
c_2, c_5	$(y^{11} - 9y^{10} + \cdots + 5y - 1)(y^{16} + 22y^{15} + \cdots - 28y + 1)$
c_3, c_7	$(y^{11} - 14y^{10} + \cdots + 21y - 1)(y^{16} - 14y^{15} + \cdots - 9728y + 1024)$
c_4, c_9	$(y^{11} - 8y^{10} + \cdots + 41y - 1)(y^{16} + 15y^{15} + \cdots - 36576y + 7225)$
c_6, c_{10}	$(y^{11} - 7y^{10} + \cdots + 6y - 1)(y^{16} + 20y^{15} + \cdots - 9y + 1)$
c_8, c_{11}	$(y^{11} + 7y^{10} + \cdots + 3y - 1)(y^{16} + 10y^{15} + \cdots - 14y + 1)$
c_{12}	$(y^{11} - 21y^{10} + \cdots + 10821y - 841)$ $\cdot (y^{16} + 38y^{15} + \cdots - 113705856y + 5841889)$