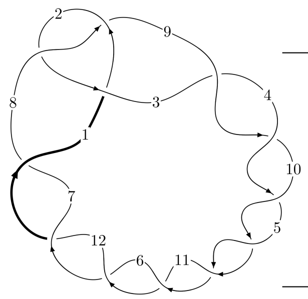
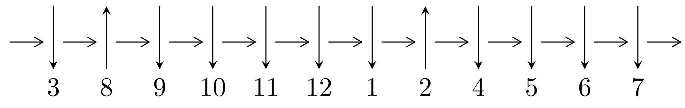
$12a_{0722}$ ($K12a_{0722}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^{14} - u^{13} + 5u^{12} - 4u^{11} + 10u^{10} - 7u^9 + 7u^8 - 4u^7 - 4u^6 + 2u^5 - 8u^4 + 4u^3 - 2u^2 + u + 1 \rangle$$

* 1 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 14 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. $\boldsymbol{I_1^u = \langle u^{14} - u^{13} + 5u^{12} - 4u^{11} + 10u^{10} - 7u^9 + 7u^8 - 4u^7 - 4u^6 + 2u^5 - 8u^4 + 4u^3 - 2u^2 + u + 1\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u^3 \\ u^3 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u^6 - u^4 + 1 \\ u^6 + 2u^4 + u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u^9 + 2u^7 + u^5 - 2u^3 - u \\ -u^9 - 3u^7 - 3u^5 + u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u^{12} + 3u^{10} + 3u^8 - 2u^6 - 4u^4 - u^2 + 1 \\ -u^{12} - 4u^{10} - 6u^8 - 2u^6 + 3u^4 + 2u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^3 \\ u^5 + u^3 + u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u^6 - u^4 + 1 \\ -u^8 - 2u^6 - 2u^4 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -u^9 - 2u^7 - u^5 + 2u^3 + u \\ -u^{11} - 3u^9 - 4u^7 - u^5 + u^3 + u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u^{12} + 3u^{10} + 3u^8 - 2u^6 - 4u^4 - u^2 + 1 \\ u^{13} - u^{12} + \cdots - u - 1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= -4u^{13} + 4u^{12} - 16u^{11} + 12u^{10} - 24u^9 + 16u^8 - 4u^7 + 20u^5 - 8u^4 + 12u^3 - 8u^2 - 4u - 14$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{14} + 9u^{13} + \cdots - 5u + 1$
c_2, c_8	$u^{14} - u^{13} + \cdots + u + 1$
c_3, c_4, c_5 c_6, c_7, c_9 c_{10}, c_{11}, c_{12}	$u^{14} + u^{13} + \cdots + 3u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{14} - 7y^{13} + \cdots - 65y + 1$
c_2, c_8	$y^{14} + 9y^{13} + \cdots - 5y + 1$
c_3, c_4, c_5 c_6, c_7, c_9 c_{10}, c_{11}, c_{12}	$y^{14} - 23y^{13} + \cdots - 5y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad 0.972298$	11.0809	-15.9440
$u = -0.306114 + 1.029060I$	$-3.14696 - 2.76430I$	$-17.6509 + 6.3298I$
$u = -0.306114 - 1.029060I$	$-3.14696 + 2.76430I$	$-17.6509 - 6.3298I$
$u = -0.884219$	-14.9042	-15.7550
$u = \quad 0.159123 + 0.837990I$	$-0.675258 + 0.985154I$	$-10.63652 - 6.07794I$
$u = \quad 0.159123 - 0.837990I$	$-0.675258 - 0.985154I$	$-10.63652 + 6.07794I$
$u = \quad 0.396353 + 1.167340I$	$-9.01747 + 3.99409I$	$-18.9152 - 4.1194I$
$u = \quad 0.396353 - 1.167340I$	$-9.01747 - 3.99409I$	$-18.9152 + 4.1194I$
$u = \quad 0.713918$	-5.61914	-15.3500
$u = -0.455547 + 1.256230I$	$-18.7410 - 4.7668I$	$-19.0242 + 3.1632I$
$u = -0.455547 - 1.256230I$	$-18.7410 + 4.7668I$	$-19.0242 - 3.1632I$
$u = \quad 0.489108 + 1.306520I$	$7.03257 + 5.19559I$	$-19.0102 - 2.7600I$
$u = \quad 0.489108 - 1.306520I$	$7.03257 - 5.19559I$	$-19.0102 + 2.7600I$
$u = -0.367845$	-0.678832	-14.4770

II. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$u^{14}+9u^{13}+\cdots-5u+1$
c_2, c_8	$u^{14}-u^{13}+\cdots+u+1$
c_3, c_4, c_5 c_6, c_7, c_9 c_{10}, c_{11}, c_{12}	$u^{14}+u^{13}+\cdots+3u+1$

III. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$y^{14} - 7y^{13} + \cdots - 65y + 1$
c_2, c_8	$y^{14} + 9y^{13} + \cdots - 5y + 1$
c_3, c_4, c_5 c_6, c_7, c_9 c_{10}, c_{11}, c_{12}	$y^{14} - 23y^{13} + \cdots - 5y + 1$