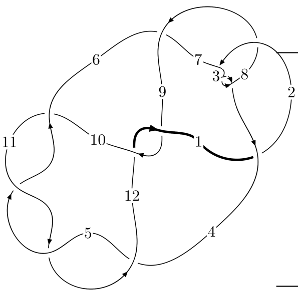
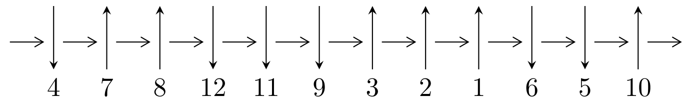
$12a_{1040}$ ($K12a_{1040}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^{57} - u^{56} + \cdots + u + 1 \rangle$$

* 1 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 57 representations.

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[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. $I^u_1 = \langle u^{57} - u^{56} + \cdots + u + 1 \rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u^3 + 2u \\ -u^3 + u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^6 - 3u^4 + 2u^2 + 1 \\ -u^8 + 4u^6 - 4u^4 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u^{17} + 8u^{15} - 25u^{13} + 36u^{11} - 19u^9 - 4u^7 + 2u^5 + 2u^3 + 3u \\ u^{19} - 9u^{17} + 32u^{15} - 55u^{13} + 43u^{11} - 9u^9 - 4u^5 - u^3 + u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u^7 - 4u^5 + 4u^3 \\ u^7 - 3u^5 + 2u^3 + u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u^{33} + 16u^{31} + \cdots + 2u^3 + 3u \\ -u^{33} + 15u^{31} + \cdots + 2u^3 + u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u^{54} + 25u^{52} + \cdots + 2u^2 + 1 \\ u^{56} - 26u^{54} + \cdots + 4u^4 - 2u^2 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u^{28} - 13u^{26} + \cdots + 5u^2 + 1 \\ -u^{30} + 14u^{28} + \cdots - 4u^4 + u^2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^{55} + 104u^{53} + \cdots + 20u + 2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_6	$u^{57} - 9u^{56} + \cdots + 417u - 41$
c_2, c_3, c_7	$u^{57} + u^{56} + \cdots + u - 1$
c_4, c_5, c_{10} c_{11}	$u^{57} + u^{56} + \cdots - u - 1$
c_8	$u^{57} - 3u^{56} + \cdots - 313u + 175$
c_9, c_{12}	$u^{57} + 11u^{56} + \cdots + 57u + 11$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_6	$y^{57} + 43y^{56} + \cdots - 48987y - 1681$
c_2, c_3, c_7	$y^{57} - 53y^{56} + \cdots - 7y - 1$
c_4, c_5, c_{10} c_{11}	$y^{57} + 63y^{56} + \cdots - 7y - 1$
c_8	$y^{57} - 17y^{56} + \cdots + 297469y - 30625$
c_9, c_{12}	$y^{57} + 27y^{56} + \cdots - 3483y - 121$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.167470 + 0.169882I$	$5.94879 - 1.26768I$	0
$u = 1.167470 - 0.169882I$	$5.94879 + 1.26768I$	0
$u = -0.380989 + 0.687075I$	$7.59135 - 9.78879I$	$4.20807 + 7.63690I$
$u = -0.380989 - 0.687075I$	$7.59135 + 9.78879I$	$4.20807 - 7.63690I$
$u = -1.210720 + 0.186692I$	$-0.388499 - 1.147720I$	0
$u = -1.210720 - 0.186692I$	$-0.388499 + 1.147720I$	0
$u = -0.450772 + 0.625585I$	$12.14170 - 2.06019I$	$8.03202 + 3.36390I$
$u = -0.450772 - 0.625585I$	$12.14170 + 2.06019I$	$8.03202 - 3.36390I$
$u = 0.370067 + 0.674356I$	$0.31418 + 7.17616I$	$0.93396 - 9.10668I$
$u = 0.370067 - 0.674356I$	$0.31418 - 7.17616I$	$0.93396 + 9.10668I$
$u = -0.535939 + 0.537357I$	$8.22131 + 5.67967I$	$5.83026 - 1.65476I$
$u = -0.535939 - 0.537357I$	$8.22131 - 5.67967I$	$5.83026 + 1.65476I$
$u = 1.236620 + 0.206975I$	$-0.13889 + 5.01254I$	0
$u = 1.236620 - 0.206975I$	$-0.13889 - 5.01254I$	0
$u = -0.355064 + 0.654949I$	$-0.47604 - 3.30732I$	$-1.43106 + 3.04352I$
$u = -0.355064 - 0.654949I$	$-0.47604 + 3.30732I$	$-1.43106 - 3.04352I$
$u = 0.418277 + 0.595875I$	$3.97873 + 1.92695I$	$7.08631 - 3.98477I$
$u = 0.418277 - 0.595875I$	$3.97873 - 1.92695I$	$7.08631 + 3.98477I$
$u = 0.514622 + 0.512995I$	$0.95022 - 3.20263I$	$2.71277 + 3.09003I$
$u = 0.514622 - 0.512995I$	$0.95022 + 3.20263I$	$2.71277 - 3.09003I$
$u = -1.255720 + 0.225833I$	$6.68945 - 7.58268I$	0
$u = -1.255720 - 0.225833I$	$6.68945 + 7.58268I$	0
$u = -1.27874$	2.94486	0
$u = 0.301202 + 0.630196I$	$5.12502 + 1.19979I$	$1.84526 - 3.54784I$
$u = 0.301202 - 0.630196I$	$5.12502 - 1.19979I$	$1.84526 + 3.54784I$
$u = -0.464588 + 0.473428I$	$0.149387 - 0.437986I$	$0.20836 + 3.87750I$
$u = -0.464588 - 0.473428I$	$0.149387 + 0.437986I$	$0.20836 - 3.87750I$
$u = 1.336280 + 0.067950I$	$4.76158 + 2.12463I$	0
$u = 1.336280 - 0.067950I$	$4.76158 - 2.12463I$	0
$u = 0.053954 + 0.654719I$	$2.66786 + 4.37051I$	$-1.69929 - 3.89268I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad 0.053954 - 0.654719I$	$2.66786 - 4.37051I$	$-1.69929 + 3.89268I$
$u = -0.019054 + 0.641634I$	$-3.95983 - 1.90551I$	$-5.97209 + 4.06985I$
$u = -0.019054 - 0.641634I$	$-3.95983 + 1.90551I$	$-5.97209 - 4.06985I$
$u = -1.395500 + 0.073443I$	$12.03160 - 3.33838I$	0
$u = -1.395500 - 0.073443I$	$12.03160 + 3.33838I$	0
$u = \quad 0.521676 + 0.299528I$	$6.18669 + 2.12511I$	$5.30374 - 3.18757I$
$u = \quad 0.521676 - 0.299528I$	$6.18669 - 2.12511I$	$5.30374 + 3.18757I$
$u = -1.42263 + 0.23603I$	$10.65770 - 4.35539I$	0
$u = -1.42263 - 0.23603I$	$10.65770 + 4.35539I$	0
$u = \quad 1.44389 + 0.19016I$	$6.16952 + 2.93600I$	0
$u = \quad 1.44389 - 0.19016I$	$6.16952 - 2.93600I$	0
$u = \quad 1.44231 + 0.24847I$	$5.29940 + 6.61308I$	0
$u = \quad 1.44231 - 0.24847I$	$5.29940 - 6.61308I$	0
$u = -1.45405 + 0.22055I$	$9.99378 - 4.92353I$	0
$u = -1.45405 - 0.22055I$	$9.99378 + 4.92353I$	0
$u = -1.46020 + 0.18074I$	$7.24551 + 0.69473I$	0
$u = -1.46020 - 0.18074I$	$7.24551 - 0.69473I$	0
$u = -1.44938 + 0.25463I$	$6.16341 - 10.57050I$	0
$u = -1.44938 - 0.25463I$	$6.16341 + 10.57050I$	0
$u = \quad 1.45510 + 0.25844I$	$13.4982 + 13.2410I$	0
$u = \quad 1.45510 - 0.25844I$	$13.4982 - 13.2410I$	0
$u = \quad 1.47223 + 0.17915I$	$14.6669 - 3.1156I$	0
$u = \quad 1.47223 - 0.17915I$	$14.6669 + 3.1156I$	0
$u = \quad 1.46992 + 0.22438I$	$18.3360 + 5.1622I$	0
$u = \quad 1.46992 - 0.22438I$	$18.3360 - 5.1622I$	0
$u = -0.209648 + 0.330630I$	$0.018322 - 0.795288I$	$0.54519 + 8.56502I$
$u = -0.209648 - 0.330630I$	$0.018322 + 0.795288I$	$0.54519 - 8.56502I$

II. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_6	$u^{57} - 9u^{56} + \cdots + 417u - 41$
c_2, c_3, c_7	$u^{57} + u^{56} + \cdots + u - 1$
c_4, c_5, c_{10} c_{11}	$u^{57} + u^{56} + \cdots - u - 1$
c_8	$u^{57} - 3u^{56} + \cdots - 313u + 175$
c_9, c_{12}	$u^{57} + 11u^{56} + \cdots + 57u + 11$

III. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_6	$y^{57} + 43y^{56} + \cdots - 48987y - 1681$
c_2, c_3, c_7	$y^{57} - 53y^{56} + \cdots - 7y - 1$
c_4, c_5, c_{10} c_{11}	$y^{57} + 63y^{56} + \cdots - 7y - 1$
c_8	$y^{57} - 17y^{56} + \cdots + 297469y - 30625$
c_9, c_{12}	$y^{57} + 27y^{56} + \cdots - 3483y - 121$