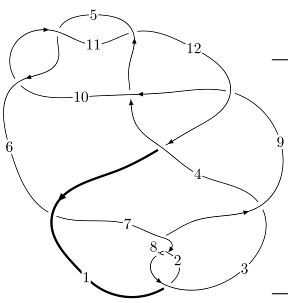
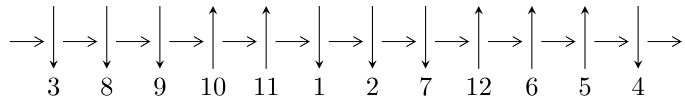
$12a_{0729}$ $(K12a_{0729})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^{83} + u^{82} + \cdots + u^2 - 1 \rangle$$

* 1 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 83 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. $\boldsymbol{I_1^u = \langle u^{83} + u^{82} + \cdots + u^2 - 1\rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u^2 + 1 \\ -u^4 - 2u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u^3 - 2u \\ u^3 + u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^{10} + 5u^8 + 8u^6 + 3u^4 - u^2 + 1 \\ -u^{10} - 4u^8 - 5u^6 - 2u^4 - u^2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u^{21} - 10u^{19} + \cdots + 2u^3 - u \\ u^{21} + 9u^{19} + 33u^{17} + 62u^{15} + 62u^{13} + 33u^{11} + 13u^9 + 6u^7 + u^5 + u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u^6 - 3u^4 - 2u^2 + 1 \\ u^8 + 4u^6 + 4u^4 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u^{17} - 8u^{15} - 25u^{13} - 36u^{11} - 19u^9 + 4u^7 + 2u^5 - 4u^3 - u \\ u^{19} + 9u^{17} + 32u^{15} + 55u^{13} + 43u^{11} + 9u^9 + 4u^5 + u^3 + u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^{50} + 23u^{48} + \cdots - u^2 + 1 \\ -u^{50} - 22u^{48} + \cdots + 4u^4 - u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -u^{46} - 21u^{44} + \cdots - 2u^2 + 1 \\ u^{48} + 22u^{46} + \cdots - 2u^6 - 2u^4 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^{82} - 4u^{81} + \cdots - 4u - 2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_8	$u^{83} + 29u^{82} + \cdots + 2u + 1$
c_2, c_7	$u^{83} + u^{82} + \cdots + 2u + 1$
c_3, c_6	$u^{83} - u^{82} + \cdots - 134u + 61$
c_4	$u^{83} + u^{82} + \cdots + 12u + 1$
c_5, c_{10}, c_{11}	$u^{83} - u^{82} + \cdots - u^2 + 1$
c_9	$u^{83} + 17u^{82} + \cdots - 49616u - 2993$
c_{12}	$u^{83} - 7u^{82} + \cdots + 24u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_8	$y^{83} + 51y^{82} + \cdots - 14y - 1$
c_2, c_7	$y^{83} - 29y^{82} + \cdots + 2y - 1$
c_3, c_6	$y^{83} - 57y^{82} + \cdots + 104454y - 3721$
c_4	$y^{83} + 7y^{82} + \cdots - 46y - 1$
c_5, c_{10}, c_{11}	$y^{83} + 75y^{82} + \cdots + 2y - 1$
c_9	$y^{83} + 31y^{82} + \cdots - 117757622y - 8958049$
c_{12}	$y^{83} - y^{82} + \cdots - 70y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.043610 + 0.954497I$	$2.99428 - 2.75779I$	0
$u = -0.043610 - 0.954497I$	$2.99428 + 2.75779I$	0
$u = -0.193895 + 1.128830I$	$-0.07783 - 3.45046I$	0
$u = -0.193895 - 1.128830I$	$-0.07783 + 3.45046I$	0
$u = -0.101245 + 1.152230I$	$-1.54161 - 1.68012I$	0
$u = -0.101245 - 1.152230I$	$-1.54161 + 1.68012I$	0
$u = 0.211269 + 1.138100I$	$-1.18955 + 8.94241I$	0
$u = 0.211269 - 1.138100I$	$-1.18955 - 8.94241I$	0
$u = 0.186175 + 1.186390I$	$-5.77198 + 3.02870I$	0
$u = 0.186175 - 1.186390I$	$-5.77198 - 3.02870I$	0
$u = -0.704891 + 0.311857I$	$-0.79242 - 12.21670I$	$-2.18841 + 10.17372I$
$u = -0.704891 - 0.311857I$	$-0.79242 + 12.21670I$	$-2.18841 - 10.17372I$
$u = 0.699597 + 0.306759I$	$0.47850 + 6.65142I$	$-0.11746 - 5.64209I$
$u = 0.699597 - 0.306759I$	$0.47850 - 6.65142I$	$-0.11746 + 5.64209I$
$u = -0.689405 + 0.322663I$	$-5.51074 - 5.83032I$	$-7.31545 + 6.21495I$
$u = -0.689405 - 0.322663I$	$-5.51074 + 5.83032I$	$-7.31545 - 6.21495I$
$u = -0.664164 + 0.333637I$	$-2.13352 + 0.66471I$	$-4.32398 + 0.73800I$
$u = -0.664164 - 0.333637I$	$-2.13352 - 0.66471I$	$-4.32398 - 0.73800I$
$u = 0.666137 + 0.310929I$	$-0.61066 + 4.17003I$	$-1.12157 - 6.41756I$
$u = 0.666137 - 0.310929I$	$-0.61066 - 4.17003I$	$-1.12157 + 6.41756I$
$u = -0.413044 + 0.606395I$	$-1.96609 + 8.30515I$	$-4.80450 - 4.74190I$
$u = -0.413044 - 0.606395I$	$-1.96609 - 8.30515I$	$-4.80450 + 4.74190I$
$u = 0.681707 + 0.228443I$	$4.87892 + 6.05893I$	$3.69719 - 7.82984I$
$u = 0.681707 - 0.228443I$	$4.87892 - 6.05893I$	$3.69719 + 7.82984I$
$u = 0.396025 + 0.595654I$	$-0.70685 - 2.80704I$	$-2.83084 + 0.14074I$
$u = 0.396025 - 0.595654I$	$-0.70685 + 2.80704I$	$-2.83084 - 0.14074I$
$u = -0.433749 + 0.565710I$	$-6.52578 + 1.97002I$	$-9.89118 - 0.17014I$
$u = -0.433749 - 0.565710I$	$-6.52578 - 1.97002I$	$-9.89118 + 0.17014I$
$u = -0.676333 + 0.213106I$	$5.07043 - 0.51123I$	$4.53334 + 1.71722I$
$u = -0.676333 - 0.213106I$	$5.07043 + 0.51123I$	$4.53334 - 1.71722I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \ \ 0.056683 + 1.299530I$	$-2.45039 - 2.35052I$	0
$u = \ \ 0.056683 - 1.299530I$	$-2.45039 + 2.35052I$	0
$u = -0.459986 + 0.517245I$	$-2.93903 - 4.43801I$	$-6.35807 + 5.78841I$
$u = -0.459986 - 0.517245I$	$-2.93903 + 4.43801I$	$-6.35807 - 5.78841I$
$u = \ \ 0.206486 + 1.294640I$	$-2.19216 - 2.49780I$	0
$u = \ \ 0.206486 - 1.294640I$	$-2.19216 + 2.49780I$	0
$u = \ \ 0.065792 + 0.683224I$	$3.01063 - 2.72363I$	$0.33673 + 3.01262I$
$u = \ \ 0.065792 - 0.683224I$	$3.01063 + 2.72363I$	$0.33673 - 3.01262I$
$u = \ \ 0.663935 + 0.070069I$	$1.99980 - 5.64967I$	$1.93456 + 4.39907I$
$u = \ \ 0.663935 - 0.070069I$	$1.99980 + 5.64967I$	$1.93456 - 4.39907I$
$u = \ \ 0.599228 + 0.293132I$	$-0.52508 + 3.63472I$	$-4.33135 - 8.21660I$
$u = \ \ 0.599228 - 0.293132I$	$-0.52508 - 3.63472I$	$-4.33135 + 8.21660I$
$u = -0.215631 + 1.323780I$	$-1.38918 - 2.84888I$	0
$u = -0.215631 - 1.323780I$	$-1.38918 + 2.84888I$	0
$u = -0.650050 + 0.090053I$	$3.00127 + 0.24831I$	$4.10024 + 0.88196I$
$u = -0.650050 - 0.090053I$	$3.00127 - 0.24831I$	$4.10024 - 0.88196I$
$u = \ \ 0.418598 + 0.502791I$	$-1.54362 - 0.53691I$	$-4.16267 - 0.20150I$
$u = \ \ 0.418598 - 0.502791I$	$-1.54362 + 0.53691I$	$-4.16267 + 0.20150I$
$u = \ \ 0.629102$	-2.23149	-3.30240
$u = -0.578536 + 0.182974I$	$1.16698 - 0.86834I$	$4.20454 + 1.66227I$
$u = -0.578536 - 0.182974I$	$1.16698 + 0.86834I$	$4.20454 - 1.66227I$
$u = -0.224381 + 1.380400I$	$-3.84517 - 3.80291I$	0
$u = -0.224381 - 1.380400I$	$-3.84517 + 3.80291I$	0
$u = -0.263144 + 1.381250I$	$0.00387 - 3.92061I$	0
$u = -0.263144 - 1.381250I$	$0.00387 + 3.92061I$	0
$u = \ \ 0.185687 + 1.397190I$	$-6.66224 + 1.71449I$	0
$u = \ \ 0.185687 - 1.397190I$	$-6.66224 - 1.71449I$	0
$u = \ \ 0.266672 + 1.388180I$	$-0.26381 + 9.50415I$	0
$u = \ \ 0.266672 - 1.388180I$	$-0.26381 - 9.50415I$	0
$u = \ \ 0.23377 + 1.40944I$	$-5.96149 + 6.69826I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad 0.23377 - 1.40944I$	$-5.96149 - 6.69826I$	0
$u = \quad 0.15542 + 1.43741I$	$-7.65214 + 1.56539I$	0
$u = \quad 0.15542 - 1.43741I$	$-7.65214 - 1.56539I$	0
$u = \quad 0.25949 + 1.42349I$	$-6.16028 + 7.55512I$	0
$u = \quad 0.25949 - 1.42349I$	$-6.16028 - 7.55512I$	0
$u = \quad 0.13211 + 1.44166I$	$-7.06020 - 0.99574I$	0
$u = \quad 0.13211 - 1.44166I$	$-7.06020 + 0.99574I$	0
$u = \quad 0.27263 + 1.42481I$	$-5.06046 + 10.19410I$	0
$u = \quad 0.27263 - 1.42481I$	$-5.06046 - 10.19410I$	0
$u = -0.27438 + 1.42745I$	$-6.3577 - 15.7841I$	0
$u = -0.27438 - 1.42745I$	$-6.3577 + 15.7841I$	0
$u = -0.25586 + 1.43089I$	$-7.78361 - 2.69789I$	0
$u = -0.25586 - 1.43089I$	$-7.78361 + 2.69789I$	0
$u = -0.13037 + 1.44798I$	$-8.40998 + 6.46616I$	0
$u = -0.13037 - 1.44798I$	$-8.40998 - 6.46616I$	0
$u = -0.26681 + 1.43012I$	$-11.1229 - 9.3181I$	0
$u = -0.26681 - 1.43012I$	$-11.1229 + 9.3181I$	0
$u = -0.15977 + 1.44638I$	$-9.16030 - 6.66044I$	0
$u = -0.15977 - 1.44638I$	$-9.16030 + 6.66044I$	0
$u = -0.14440 + 1.44851I$	$-12.87500 - 0.05403I$	0
$u = -0.14440 - 1.44851I$	$-12.87500 + 0.05403I$	0
$u = \quad 0.371683 + 0.367425I$	$-1.215020 - 0.522353I$	$-7.30431 + 0.66479I$
$u = \quad 0.371683 - 0.367425I$	$-1.215020 + 0.522353I$	$-7.30431 - 0.66479I$

II. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_8	$u^{83} + 29u^{82} + \cdots + 2u + 1$
c_2, c_7	$u^{83} + u^{82} + \cdots + 2u + 1$
c_3, c_6	$u^{83} - u^{82} + \cdots - 134u + 61$
c_4	$u^{83} + u^{82} + \cdots + 12u + 1$
c_5, c_{10}, c_{11}	$u^{83} - u^{82} + \cdots - u^2 + 1$
c_9	$u^{83} + 17u^{82} + \cdots - 49616u - 2993$
c_{12}	$u^{83} - 7u^{82} + \cdots + 24u - 1$

III. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_8	$y^{83} + 51y^{82} + \cdots - 14y - 1$
c_2, c_7	$y^{83} - 29y^{82} + \cdots + 2y - 1$
c_3, c_6	$y^{83} - 57y^{82} + \cdots + 104454y - 3721$
c_4	$y^{83} + 7y^{82} + \cdots - 46y - 1$
c_5, c_{10}, c_{11}	$y^{83} + 75y^{82} + \cdots + 2y - 1$
c_9	$y^{83} + 31y^{82} + \cdots - 117757622y - 8958049$
c_{12}	$y^{83} - y^{82} + \cdots - 70y - 1$