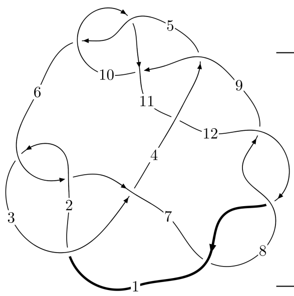
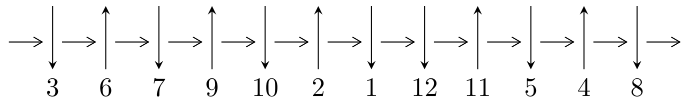
$12a_{0221}$ $(K12a_{0221})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^{84} + u^{83} + \cdots + 2u + 1 \rangle$$

* 1 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 84 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. $I_1^u = \langle u^{84} + u^{83} + \cdots + 2u + 1 \rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} u \\ u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u^4 + u^2 + 1 \\ u^4 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^2 + 1 \\ -u^4 \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} u^{12} + 3u^{10} + 5u^8 + 4u^6 + 2u^4 + u^2 + 1 \\ -u^{14} - 2u^{12} - 3u^{10} - 2u^8 - 2u^6 - 2u^4 - u^2 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^{17} - 4u^{15} - 9u^{13} - 12u^{11} - 11u^9 - 8u^7 - 6u^5 - 4u^3 - u \\ u^{19} + 3u^{17} + 6u^{15} + 7u^{13} + 7u^{11} + 7u^9 + 6u^7 + 4u^5 + u^3 + u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^{22} + 5u^{20} + \cdots + 2u^2 + 1 \\ u^{22} + 4u^{20} + 9u^{18} + 12u^{16} + 10u^{14} + 6u^{12} + 3u^{10} + 2u^8 - u^6 - 2u^4 - u^2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u^{63} + 14u^{61} + \cdots + 56u^7 + 12u^5 \\ u^{63} + 13u^{61} + \cdots - 6u^7 + u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} u^{40} + 9u^{38} + \cdots + 2u^2 + 1 \\ -u^{42} - 8u^{40} + \cdots - 2u^4 - u^2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u^{83} + 4u^{82} + \cdots + 12u + 6$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{84} + 37u^{83} + \cdots + 2u + 1$
c_2, c_6	$u^{84} - u^{83} + \cdots - 2u + 1$
c_3	$u^{84} + u^{83} + \cdots - 2u + 1$
c_4	$u^{84} + u^{83} + \cdots - 1110u + 1237$
c_5, c_{10}	$u^{84} - u^{83} + \cdots + u^2 + 1$
c_7, c_8, c_{12}	$u^{84} - 5u^{83} + \cdots - 150u + 13$
c_9	$u^{84} - 41u^{83} + \cdots - 2u + 1$
c_{11}	$u^{84} - 5u^{83} + \cdots - 20u + 133$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{84} + 21y^{83} + \cdots + 10y + 1$
c_2, c_6	$y^{84} + 37y^{83} + \cdots + 2y + 1$
c_3	$y^{84} + 5y^{83} + \cdots + 66y + 1$
c_4	$y^{84} - 31y^{83} + \cdots - 27364962y + 1530169$
c_5, c_{10}	$y^{84} + 41y^{83} + \cdots + 2y + 1$
c_7, c_8, c_{12}	$y^{84} + 89y^{83} + \cdots + 11742y + 169$
c_9	$y^{84} + 5y^{83} + \cdots + 10y + 1$
c_{11}	$y^{84} - 11y^{83} + \cdots + 78070y + 17689$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.223462 + 0.933764I$	$-0.07570 - 1.69164I$	0
$u = -0.223462 - 0.933764I$	$-0.07570 + 1.69164I$	0
$u = 0.791209 + 0.516161I$	$10.32730 + 7.27403I$	$5.32581 - 5.73192I$
$u = 0.791209 - 0.516161I$	$10.32730 - 7.27403I$	$5.32581 + 5.73192I$
$u = 0.037106 + 1.056750I$	$-0.19944 - 2.21631I$	0
$u = 0.037106 - 1.056750I$	$-0.19944 + 2.21631I$	0
$u = 0.796662 + 0.503525I$	$12.03280 - 0.97322I$	$7.54914 + 0.I$
$u = 0.796662 - 0.503525I$	$12.03280 + 0.97322I$	$7.54914 + 0.I$
$u = -0.787400 + 0.509956I$	$7.67805 - 2.34302I$	0
$u = -0.787400 - 0.509956I$	$7.67805 + 2.34302I$	0
$u = 0.543765 + 0.916385I$	$2.63357 - 1.71163I$	0
$u = 0.543765 - 0.916385I$	$2.63357 + 1.71163I$	0
$u = -0.805009 + 0.474254I$	$11.86550 + 2.32230I$	$7.32986 + 0.I$
$u = -0.805009 - 0.474254I$	$11.86550 - 2.32230I$	$7.32986 + 0.I$
$u = -0.807000 + 0.462064I$	$10.0185 + 10.5475I$	$4.83061 - 6.04400I$
$u = -0.807000 - 0.462064I$	$10.0185 - 10.5475I$	$4.83061 + 6.04400I$
$u = -0.508321 + 0.945367I$	$0.05765 - 2.39517I$	0
$u = -0.508321 - 0.945367I$	$0.05765 + 2.39517I$	0
$u = 0.801408 + 0.464683I$	$7.42012 - 5.56366I$	$0. + 2.51060I$
$u = 0.801408 - 0.464683I$	$7.42012 + 5.56366I$	$0. - 2.51060I$
$u = 0.308336 + 1.036850I$	$-3.73977 - 0.08549I$	0
$u = 0.308336 - 1.036850I$	$-3.73977 + 0.08549I$	0
$u = -0.285037 + 1.047880I$	$-1.75442 + 4.74800I$	0
$u = -0.285037 - 1.047880I$	$-1.75442 - 4.74800I$	0
$u = -0.769820 + 0.487123I$	$5.19035 - 0.86260I$	$1.23878 + 3.04762I$
$u = -0.769820 - 0.487123I$	$5.19035 + 0.86260I$	$1.23878 - 3.04762I$
$u = 0.778145 + 0.470305I$	$5.09099 - 3.85034I$	$0.89323 + 3.65261I$
$u = 0.778145 - 0.470305I$	$5.09099 + 3.85034I$	$0.89323 - 3.65261I$
$u = -0.339809 + 0.830779I$	$-0.13330 - 1.63331I$	$-0.57375 + 3.86192I$
$u = -0.339809 - 0.830779I$	$-0.13330 + 1.63331I$	$-0.57375 - 3.86192I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad 0.358186 + 1.043080I$	$-4.14324 + 1.55939I$	0
$u = \quad 0.358186 - 1.043080I$	$-4.14324 - 1.55939I$	0
$u = \quad 0.043589 + 1.113230I$	$1.93267 - 3.70749I$	0
$u = \quad 0.043589 - 1.113230I$	$1.93267 + 3.70749I$	0
$u = \quad 0.551965 + 0.969258I$	$3.24663 + 5.73101I$	0
$u = \quad 0.551965 - 0.969258I$	$3.24663 - 5.73101I$	0
$u = -0.026149 + 1.121100I$	$6.27570 + 0.52297I$	0
$u = -0.026149 - 1.121100I$	$6.27570 - 0.52297I$	0
$u = -0.381786 + 1.056500I$	$-2.57890 - 6.08174I$	0
$u = -0.381786 - 1.056500I$	$-2.57890 + 6.08174I$	0
$u = -0.047926 + 1.123680I$	$4.49933 + 8.62941I$	0
$u = -0.047926 - 1.123680I$	$4.49933 - 8.62941I$	0
$u = \quad 0.564858 + 0.667954I$	$3.34666 + 6.18409I$	$4.75304 - 7.47482I$
$u = \quad 0.564858 - 0.667954I$	$3.34666 - 6.18409I$	$4.75304 + 7.47482I$
$u = -0.458432 + 1.061660I$	$-2.07874 - 0.79068I$	0
$u = -0.458432 - 1.061660I$	$-2.07874 + 0.79068I$	0
$u = \quad 0.483376 + 1.064070I$	$-3.30588 + 5.23729I$	0
$u = \quad 0.483376 - 1.064070I$	$-3.30588 - 5.23729I$	0
$u = -0.510868 + 0.650088I$	$0.91179 - 1.80281I$	$1.30059 + 3.91326I$
$u = -0.510868 - 0.650088I$	$0.91179 + 1.80281I$	$1.30059 - 3.91326I$
$u = -0.534113 + 1.054150I$	$1.75841 - 4.59094I$	0
$u = -0.534113 - 1.054150I$	$1.75841 + 4.59094I$	0
$u = \quad 0.575651 + 0.581028I$	$4.35803 - 1.20708I$	$6.98007 + 0.38131I$
$u = \quad 0.575651 - 0.581028I$	$4.35803 + 1.20708I$	$6.98007 - 0.38131I$
$u = \quad 0.513175 + 1.074520I$	$-2.37945 + 6.93925I$	0
$u = \quad 0.513175 - 1.074520I$	$-2.37945 - 6.93925I$	0
$u = -0.521503 + 1.082880I$	$-0.20890 - 11.73350I$	0
$u = -0.521503 - 1.082880I$	$-0.20890 + 11.73350I$	0
$u = -0.616198 + 1.072140I$	$3.44700 - 4.37796I$	0
$u = -0.616198 - 1.072140I$	$3.44700 + 4.37796I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.632761 + 1.065390I$	$6.01874 - 3.00258I$	0
$u = -0.632761 - 1.065390I$	$6.01874 + 3.00258I$	0
$u = 0.637028 + 1.063380I$	$8.69167 - 1.90319I$	0
$u = 0.637028 - 1.063380I$	$8.69167 + 1.90319I$	0
$u = 0.616009 + 1.082200I$	$3.26859 + 9.11086I$	0
$u = 0.616009 - 1.082200I$	$3.26859 - 9.11086I$	0
$u = 0.635377 + 1.071920I$	$10.33310 + 6.35256I$	0
$u = 0.635377 - 1.071920I$	$10.33310 - 6.35256I$	0
$u = -0.628985 + 1.088730I$	$10.02760 - 7.69935I$	0
$u = -0.628985 - 1.088730I$	$10.02760 + 7.69935I$	0
$u = 0.624160 + 1.091740I$	$5.54652 + 10.91310I$	0
$u = 0.624160 - 1.091740I$	$5.54652 - 10.91310I$	0
$u = -0.625644 + 1.094730I$	$8.1266 - 15.9167I$	0
$u = -0.625644 - 1.094730I$	$8.1266 + 15.9167I$	0
$u = -0.607812 + 0.381445I$	$3.64708 + 0.08854I$	$5.69951 - 0.71462I$
$u = -0.607812 - 0.381445I$	$3.64708 - 0.08854I$	$5.69951 + 0.71462I$
$u = -0.632909 + 0.297597I$	$1.98999 + 7.25331I$	$1.90672 - 7.55824I$
$u = -0.632909 - 0.297597I$	$1.98999 - 7.25331I$	$1.90672 + 7.55824I$
$u = 0.594633 + 0.293043I$	$-0.22402 - 2.57780I$	$-1.72559 + 3.89319I$
$u = 0.594633 - 0.293043I$	$-0.22402 + 2.57780I$	$-1.72559 - 3.89319I$
$u = 0.508540 + 0.204173I$	$-1.08367 - 1.23781I$	$-4.17334 + 4.04965I$
$u = 0.508540 - 0.204173I$	$-1.08367 + 1.23781I$	$-4.17334 - 4.04965I$
$u = -0.512235 + 0.097566I$	$0.33885 - 2.95765I$	$-1.40754 + 2.86155I$
$u = -0.512235 - 0.097566I$	$0.33885 + 2.95765I$	$-1.40754 - 2.86155I$

II. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$u^{84}+37u^{83}+\cdots+2u+1$
c_2, c_6	$u^{84}-u^{83}+\cdots-2u+1$
c_3	$u^{84}+u^{83}+\cdots-2u+1$
c_4	$u^{84}+u^{83}+\cdots-1110u+1237$
c_5, c_{10}	$u^{84}-u^{83}+\cdots+u^2+1$
c_7, c_8, c_{12}	$u^{84}-5u^{83}+\cdots-150u+13$
c_9	$u^{84}-41u^{83}+\cdots-2u+1$
c_{11}	$u^{84}-5u^{83}+\cdots-20u+133$

III. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$y^{84} + 21y^{83} + \cdots + 10y + 1$
c_2, c_6	$y^{84} + 37y^{83} + \cdots + 2y + 1$
c_3	$y^{84} + 5y^{83} + \cdots + 66y + 1$
c_4	$y^{84} - 31y^{83} + \cdots - 27364962y + 1530169$
c_5, c_{10}	$y^{84} + 41y^{83} + \cdots + 2y + 1$
c_7, c_8, c_{12}	$y^{84} + 89y^{83} + \cdots + 11742y + 169$
c_9	$y^{84} + 5y^{83} + \cdots + 10y + 1$
c_{11}	$y^{84} - 11y^{83} + \cdots + 78070y + 17689$