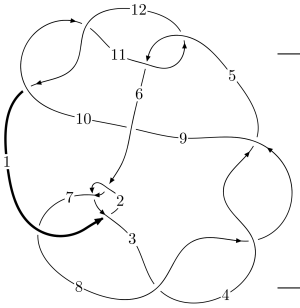
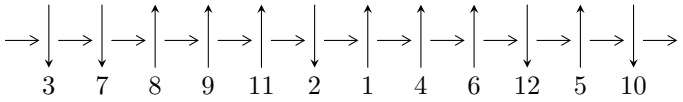
$12a_{0512}$ $(K12a_{0512})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^{75} + u^{74} + \cdots + u^2 - 1 \rangle$$

* 1 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 75 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. $I_1^u = \langle u^{75} + u^{74} + \cdots + u^2 - 1 \rangle$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} u \\ u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u^3 \\ u^3 + u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^5 + u \\ u^5 + u^3 + u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^5 - u \\ u^7 + u^5 + 2u^3 + u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -u^{12} - u^{10} - 3u^8 - 2u^6 - 2u^4 - u^2 + 1 \\ u^{14} + 2u^{12} + 5u^{10} + 6u^8 + 6u^6 + 4u^4 + u^2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u^{19} + 2u^{17} + 6u^{15} + 8u^{13} + 11u^{11} + 10u^9 + 6u^7 + 2u^5 - u^3 - 2u \\ -u^{21} - 3u^{19} + \cdots + u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u^{26} + 3u^{24} + \cdots - 3u^2 + 1 \\ -u^{28} - 4u^{26} + \cdots + 7u^4 + 2u^2 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} u^{31} + 4u^{29} + \cdots - 4u^3 - 2u \\ u^{31} + 5u^{29} + \cdots - 2u^3 + u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -u^{59} - 8u^{57} + \cdots + 12u^5 + 7u^3 \\ u^{61} + 9u^{59} + \cdots - u^3 + u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u^{73} + 4u^{72} + \cdots + 8u + 2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{75}+33u^{74}+\cdots+2u+1$
c_2, c_6	$u^{75}-u^{74}+\cdots+u^2-1$
c_3, c_4, c_8	$u^{75}+u^{74}+\cdots-110u-25$
c_5, c_{11}	$u^{75}+u^{74}+\cdots+u^2-1$
c_7	$u^{75}-3u^{74}+\cdots-8u+3$
c_9	$u^{75}-5u^{74}+\cdots+21044u-3477$
c_{10}, c_{12}	$u^{75}+23u^{74}+\cdots+2u-1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{75} + 19y^{74} + \cdots - 10y - 1$
c_2, c_6	$y^{75} - 33y^{74} + \cdots + 2y - 1$
c_3, c_4, c_8	$y^{75} - 81y^{74} + \cdots + 28950y - 625$
c_5, c_{11}	$y^{75} + 23y^{74} + \cdots + 2y - 1$
c_7	$y^{75} - 5y^{74} + \cdots + 562y - 9$
c_9	$y^{75} - 29y^{74} + \cdots + 182318326y - 12089529$
c_{10}, c_{12}	$y^{75} + 59y^{74} + \cdots + 22y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.682193 + 0.732664I$	$-0.302285 + 0.979820I$	0
$u = 0.682193 - 0.732664I$	$-0.302285 - 0.979820I$	0
$u = -0.101406 + 0.992248I$	$-4.21065 - 6.07424I$	$-4.70014 + 8.18701I$
$u = -0.101406 - 0.992248I$	$-4.21065 + 6.07424I$	$-4.70014 - 8.18701I$
$u = -0.044728 + 0.980361I$	$-5.29212 + 0.73505I$	$-7.97312 + 0.I$
$u = -0.044728 - 0.980361I$	$-5.29212 - 0.73505I$	$-7.97312 + 0.I$
$u = 0.231455 + 1.000170I$	$-0.58521 + 2.91346I$	0
$u = 0.231455 - 1.000170I$	$-0.58521 - 2.91346I$	0
$u = 0.748094 + 0.708104I$	$1.49916 - 5.73552I$	0
$u = 0.748094 - 0.708104I$	$1.49916 + 5.73552I$	0
$u = 0.277622 + 1.006300I$	$3.26637 - 3.71880I$	0
$u = 0.277622 - 1.006300I$	$3.26637 + 3.71880I$	0
$u = 0.099815 + 0.950570I$	$-2.03163 + 1.90280I$	$-1.00812 - 4.53925I$
$u = 0.099815 - 0.950570I$	$-2.03163 - 1.90280I$	$-1.00812 + 4.53925I$
$u = -0.265572 + 1.012460I$	$4.96981 - 1.56282I$	0
$u = -0.265572 - 1.012460I$	$4.96981 + 1.56282I$	0
$u = -0.586679 + 0.867149I$	$-1.77126 + 1.03509I$	0
$u = -0.586679 - 0.867149I$	$-1.77126 - 1.03509I$	0
$u = -0.746947 + 0.736867I$	$3.53722 + 1.18244I$	0
$u = -0.746947 - 0.736867I$	$3.53722 - 1.18244I$	0
$u = -0.242468 + 1.028110I$	$4.79959 - 4.64962I$	0
$u = -0.242468 - 1.028110I$	$4.79959 + 4.64962I$	0
$u = 0.234800 + 1.034640I$	$2.95579 + 9.94979I$	0
$u = 0.234800 - 1.034640I$	$2.95579 - 9.94979I$	0
$u = 0.647448 + 0.875979I$	$0.73242 + 2.51663I$	0
$u = 0.647448 - 0.875979I$	$0.73242 - 2.51663I$	0
$u = -0.758459 + 0.794993I$	$4.55012 - 0.14668I$	0
$u = -0.758459 - 0.794993I$	$4.55012 + 0.14668I$	0
$u = -0.628084 + 0.921139I$	$-2.04419 - 5.77241I$	0
$u = -0.628084 - 0.921139I$	$-2.04419 + 5.77241I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.835257+0.742674I$	$6.35107+2.04623I$	0
$u=-0.835257-0.742674I$	$6.35107-2.04623I$	0
$u=\ \ 0.758172+0.825776I$	$3.58561+4.71802I$	0
$u=\ \ 0.758172-0.825776I$	$3.58561-4.71802I$	0
$u=-0.847393+0.734484I$	$10.08040+9.29957I$	0
$u=-0.847393-0.734484I$	$10.08040-9.29957I$	0
$u=\ \ 0.846821+0.739280I$	$11.94220-3.91143I$	0
$u=\ \ 0.846821-0.739280I$	$11.94220+3.91143I$	0
$u=\ \ 0.845301+0.751762I$	$12.17070-0.58717I$	0
$u=\ \ 0.845301-0.751762I$	$12.17070+0.58717I$	0
$u=-0.844440+0.757264I$	$10.49740-4.80557I$	0
$u=-0.844440-0.757264I$	$10.49740+4.80557I$	0
$u=\ \ 0.738716+0.913060I$	$3.31838+0.95336I$	0
$u=\ \ 0.738716-0.913060I$	$3.31838-0.95336I$	0
$u=\ \ 0.682106+0.959266I$	$-0.98202+4.31584I$	0
$u=\ \ 0.682106-0.959266I$	$-0.98202-4.31584I$	0
$u=-0.731393+0.936292I$	$4.12042-5.50383I$	0
$u=-0.731393-0.936292I$	$4.12042+5.50383I$	0
$u=\ \ 0.158699+0.795794I$	$-0.93723+1.74811I$	$1.58765-5.17968I$
$u=\ \ 0.158699-0.795794I$	$-0.93723-1.74811I$	$1.58765+5.17968I$
$u=-0.709189+0.967062I$	$2.84545-6.72964I$	0
$u=-0.709189-0.967062I$	$2.84545+6.72964I$	0
$u=\ \ 0.702838+0.980436I$	$0.68737+11.26350I$	0
$u=\ \ 0.702838-0.980436I$	$0.68737-11.26350I$	0
$u=-0.753756+0.996096I$	$5.57098-7.98818I$	0
$u=-0.753756-0.996096I$	$5.57098+7.98818I$	0
$u=-0.765394+0.991927I$	$9.77291-1.20159I$	0
$u=-0.765394-0.991927I$	$9.77291+1.20159I$	0
$u=\ \ 0.763313+0.995423I$	$11.41870+6.58981I$	0
$u=\ \ 0.763313-0.995423I$	$11.41870-6.58981I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \ 0.758437 + 1.002770I$	$11.1297 + 9.9017I$	0
$u = \ 0.758437 - 1.002770I$	$11.1297 - 9.9017I$	0
$u = -0.756608 + 1.005470I$	$9.2451 - 15.2850I$	0
$u = -0.756608 - 1.005470I$	$9.2451 + 15.2850I$	0
$u = \ 0.686093 + 0.028981I$	$6.40339 + 6.93089I$	$7.58937 - 5.03714I$
$u = \ 0.686093 - 0.028981I$	$6.40339 - 6.93089I$	$7.58937 + 5.03714I$
$u = -0.685171 + 0.015873I$	$8.17683 - 1.59594I$	$10.20433 + 0.32100I$
$u = -0.685171 - 0.015873I$	$8.17683 + 1.59594I$	$10.20433 - 0.32100I$
$u = \ 0.652464$	2.61478	4.37850
$u = -0.334129 + 0.411688I$	$-1.50019 + 1.55713I$	$0.650340 - 0.272682I$
$u = -0.334129 - 0.411688I$	$-1.50019 - 1.55713I$	$0.650340 + 0.272682I$
$u = -0.480157 + 0.207491I$	$-0.60976 - 4.42214I$	$4.50486 + 7.49216I$
$u = -0.480157 - 0.207491I$	$-0.60976 + 4.42214I$	$4.50486 - 7.49216I$
$u = \ 0.429074 + 0.095570I$	$1.039040 + 0.315096I$	$9.75730 - 1.79361I$
$u = \ 0.429074 - 0.095570I$	$1.039040 - 0.315096I$	$9.75730 + 1.79361I$

II. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$u^{75}+33u^{74}+\cdots+2u+1$
c_2, c_6	$u^{75}-u^{74}+\cdots+u^2-1$
c_3, c_4, c_8	$u^{75}+u^{74}+\cdots-110u-25$
c_5, c_{11}	$u^{75}+u^{74}+\cdots+u^2-1$
c_7	$u^{75}-3u^{74}+\cdots-8u+3$
c_9	$u^{75}-5u^{74}+\cdots+21044u-3477$
c_{10}, c_{12}	$u^{75}+23u^{74}+\cdots+2u-1$

III. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$y^{75}+19y^{74}+\cdots-10y-1$
c_2, c_6	$y^{75}-33y^{74}+\cdots+2y-1$
c_3, c_4, c_8	$y^{75}-81y^{74}+\cdots+28950y-625$
c_5, c_{11}	$y^{75}+23y^{74}+\cdots+2y-1$
c_7	$y^{75}-5y^{74}+\cdots+562y-9$
c_9	$y^{75}-29y^{74}+\cdots+182318326y-12089529$
c_{10}, c_{12}	$y^{75}+59y^{74}+\cdots+22y-1$