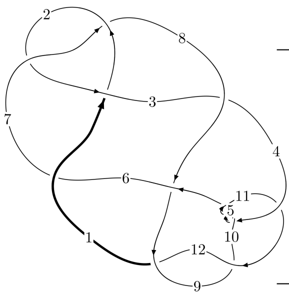
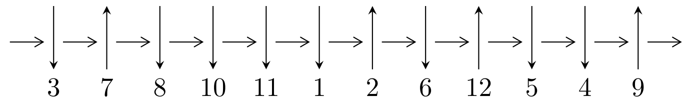
$12a_{0541}$ ($K12a_{0541}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^{76} - u^{75} + \cdots - 2u - 1 \rangle$$

* 1 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 76 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. $I_1^u = \langle u^{76} - u^{75} + \cdots - 2u - 1\rangle$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u^2 + 1 \\ -u^4 + 2u^2 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} u^3 - 2u \\ -u^3 + u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^7 + 4u^5 - 4u^3 \\ u^7 - 3u^5 + 2u^3 + u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^{11} - 6u^9 + 12u^7 - 8u^5 + u^3 - 2u \\ -u^{11} + 5u^9 - 8u^7 + 3u^5 + u^3 + u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} u^{26} - 13u^{24} + \cdots - 3u^2 + 1 \\ -u^{26} + 12u^{24} + \cdots + 4u^4 + 3u^2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u^{13} - 6u^{11} + 13u^9 - 12u^7 + 6u^5 - 4u^3 + u \\ u^{15} - 7u^{13} + 18u^{11} - 19u^9 + 6u^7 - 2u^5 + 4u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u^{28} + 13u^{26} + \cdots - u^2 + 1 \\ -u^{30} + 14u^{28} + \cdots - 8u^4 - u^2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u^{69} - 32u^{67} + \cdots + 4u^3 - 3u \\ u^{71} - 33u^{69} + \cdots + 2u^3 + u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^{74} + 140u^{72} + \cdots - 20u - 10$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{76} + 41u^{75} + \cdots + 2u + 1$
c_2, c_7	$u^{76} + u^{75} + \cdots - 2u - 1$
c_3, c_6	$u^{76} - u^{75} + \cdots + u - 2$
c_4, c_5, c_{10}	$u^{76} - u^{75} + \cdots - 2u - 1$
c_8	$u^{76} - 11u^{75} + \cdots - 5222u + 701$
c_9, c_{12}	$u^{76} + 11u^{75} + \cdots + 28u + 1$
c_{11}	$u^{76} + 3u^{75} + \cdots + 1213u + 264$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{76} - 11y^{75} + \cdots - 10y + 1$
c_2, c_7	$y^{76} + 41y^{75} + \cdots + 2y + 1$
c_3, c_6	$y^{76} - 63y^{75} + \cdots + 659y + 4$
c_4, c_5, c_{10}	$y^{76} - 71y^{75} + \cdots + 2y + 1$
c_8	$y^{76} - 23y^{75} + \cdots + 1083362y + 491401$
c_9, c_{12}	$y^{76} + 65y^{75} + \cdots + 174y + 1$
c_{11}	$y^{76} - 27y^{75} + \cdots - 2910169y + 69696$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.129570 + 0.058336I$	$-4.97762 + 3.97568I$	0
$u = 1.129570 - 0.058336I$	$-4.97762 - 3.97568I$	0
$u = -0.407771 + 0.685752I$	$-8.10020 + 11.53670I$	$-9.08879 - 9.10866I$
$u = -0.407771 - 0.685752I$	$-8.10020 - 11.53670I$	$-9.08879 + 9.10866I$
$u = -0.419176 + 0.676793I$	$-8.93857 + 2.57784I$	$-10.57384 - 2.81236I$
$u = -0.419176 - 0.676793I$	$-8.93857 - 2.57784I$	$-10.57384 + 2.81236I$
$u = 0.408279 + 0.677761I$	$-4.89911 - 6.69327I$	$-6.12847 + 6.07369I$
$u = 0.408279 - 0.677761I$	$-4.89911 + 6.69327I$	$-6.12847 - 6.07369I$
$u = -1.207110 + 0.068967I$	$-2.20534 + 0.18555I$	0
$u = -1.207110 - 0.068967I$	$-2.20534 - 0.18555I$	0
$u = -0.510556 + 0.594333I$	$-9.30162 + 1.64723I$	$-11.54189 - 3.42806I$
$u = -0.510556 - 0.594333I$	$-9.30162 - 1.64723I$	$-11.54189 + 3.42806I$
$u = -0.525486 + 0.580123I$	$-8.56487 - 7.31358I$	$-10.37548 + 3.04110I$
$u = -0.525486 - 0.580123I$	$-8.56487 + 7.31358I$	$-10.37548 - 3.04110I$
$u = 0.513447 + 0.579259I$	$-5.32440 + 2.51244I$	$-7.37553 + 0.12238I$
$u = 0.513447 - 0.579259I$	$-5.32440 - 2.51244I$	$-7.37553 - 0.12238I$
$u = -1.228120 + 0.155356I$	$-0.704039 + 0.729510I$	0
$u = -1.228120 - 0.155356I$	$-0.704039 - 0.729510I$	0
$u = 0.437056 + 0.615667I$	$-4.91083 - 2.00981I$	$-11.92334 + 3.56643I$
$u = 0.437056 - 0.615667I$	$-4.91083 + 2.00981I$	$-11.92334 - 3.56643I$
$u = 0.378099 + 0.650366I$	$-1.22584 - 6.60011I$	$-4.55940 + 9.49229I$
$u = 0.378099 - 0.650366I$	$-1.22584 + 6.60011I$	$-4.55940 - 9.49229I$
$u = 1.251120 + 0.181533I$	$-0.98838 - 4.93235I$	0
$u = 1.251120 - 0.181533I$	$-0.98838 + 4.93235I$	0
$u = -0.369878 + 0.620118I$	$-0.32504 + 2.32288I$	$-2.23390 - 3.34531I$
$u = -0.369878 - 0.620118I$	$-0.32504 - 2.32288I$	$-2.23390 + 3.34531I$
$u = 0.468281 + 0.522087I$	$-1.69233 + 2.73838I$	$-6.28797 - 2.96483I$
$u = 0.468281 - 0.522087I$	$-1.69233 - 2.73838I$	$-6.28797 + 2.96483I$
$u = 1.297680 + 0.207212I$	$-3.63192 - 5.27853I$	0
$u = 1.297680 - 0.207212I$	$-3.63192 + 5.27853I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.298360 + 0.222658I$	$-6.62865 + 9.91898I$	0
$u = -1.298360 - 0.222658I$	$-6.62865 - 9.91898I$	0
$u = -0.392192 + 0.540420I$	$-0.60258 + 1.29930I$	$-2.99429 - 4.00556I$
$u = -0.392192 - 0.540420I$	$-0.60258 - 1.29930I$	$-2.99429 + 4.00556I$
$u = 1.332200 + 0.082576I$	$-5.20037 - 2.33630I$	0
$u = 1.332200 - 0.082576I$	$-5.20037 + 2.33630I$	0
$u = -1.322740 + 0.206079I$	$-7.40445 + 1.51044I$	0
$u = -1.322740 - 0.206079I$	$-7.40445 - 1.51044I$	0
$u = 0.115466 + 0.633886I$	$-2.23974 - 6.80539I$	$-3.37563 + 7.46153I$
$u = 0.115466 - 0.633886I$	$-2.23974 + 6.80539I$	$-3.37563 - 7.46153I$
$u = 0.160023 + 0.605492I$	$-2.77984 + 1.43036I$	$-4.77413 + 1.09094I$
$u = 0.160023 - 0.605492I$	$-2.77984 - 1.43036I$	$-4.77413 - 1.09094I$
$u = -0.108605 + 0.604765I$	$0.72734 + 2.31908I$	$0.35171 - 4.52916I$
$u = -0.108605 - 0.604765I$	$0.72734 - 2.31908I$	$0.35171 + 4.52916I$
$u = -0.022641 + 0.605334I$	$2.88084 + 2.05802I$	$3.35262 - 4.47738I$
$u = -0.022641 - 0.605334I$	$2.88084 - 2.05802I$	$3.35262 + 4.47738I$
$u = 0.594523 + 0.069708I$	$-4.74365 - 4.17508I$	$-10.50247 + 4.04595I$
$u = 0.594523 - 0.069708I$	$-4.74365 + 4.17508I$	$-10.50247 - 4.04595I$
$u = 1.40287$	-7.32649	0
$u = -1.41514 + 0.01222I$	$-10.81790 + 4.39921I$	0
$u = -1.41514 - 0.01222I$	$-10.81790 - 4.39921I$	0
$u = 1.44452 + 0.21346I$	$-6.49200 - 4.13146I$	0
$u = 1.44452 - 0.21346I$	$-6.49200 + 4.13146I$	0
$u = 1.44563 + 0.23471I$	$-6.16565 - 5.46517I$	0
$u = 1.44563 - 0.23471I$	$-6.16565 + 5.46517I$	0
$u = -1.45145 + 0.19655I$	$-7.80075 - 0.09297I$	0
$u = -1.45145 - 0.19655I$	$-7.80075 + 0.09297I$	0
$u = -1.45021 + 0.24403I$	$-7.10735 + 9.87358I$	0
$u = -1.45021 - 0.24403I$	$-7.10735 - 9.87358I$	0
$u = -1.46455 + 0.22474I$	$-11.03500 + 5.08747I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.46455 - 0.22474I$	$-11.03500 - 5.08747I$	0
$u = -0.513999$	-1.50213	-7.67860
$u = -1.46465 + 0.25115I$	$-10.9355 + 10.0869I$	0
$u = -1.46465 - 0.25115I$	$-10.9355 - 10.0869I$	0
$u = \quad 1.46564 + 0.25429I$	$-14.1388 - 14.9696I$	0
$u = \quad 1.46564 - 0.25429I$	$-14.1388 + 14.9696I$	0
$u = \quad 1.46860 + 0.24901I$	$-15.0275 - 5.9593I$	0
$u = \quad 1.46860 - 0.24901I$	$-15.0275 + 5.9593I$	0
$u = -1.47894 + 0.19668I$	$-11.75090 + 0.29241I$	0
$u = -1.47894 - 0.19668I$	$-11.75090 - 0.29241I$	0
$u = \quad 1.48245 + 0.19353I$	$-15.0493 + 4.5269I$	0
$u = \quad 1.48245 - 0.19353I$	$-15.0493 - 4.5269I$	0
$u = \quad 1.48205 + 0.20161I$	$-15.7399 - 4.5270I$	0
$u = \quad 1.48205 - 0.20161I$	$-15.7399 + 4.5270I$	0
$u = -0.281496 + 0.293923I$	$-0.389765 + 1.018260I$	$-6.12831 - 6.36732I$
$u = -0.281496 - 0.293923I$	$-0.389765 - 1.018260I$	$-6.12831 + 6.36732I$

II. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$u^{76}+41u^{75}+\cdots+2u+1$
c_2, c_7	$u^{76}+u^{75}+\cdots-2u-1$
c_3, c_6	$u^{76}-u^{75}+\cdots+u-2$
c_4, c_5, c_{10}	$u^{76}-u^{75}+\cdots-2u-1$
c_8	$u^{76}-11u^{75}+\cdots-5222u+701$
c_9, c_{12}	$u^{76}+11u^{75}+\cdots+28u+1$
c_{11}	$u^{76}+3u^{75}+\cdots+1213u+264$

III. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$y^{76} - 11y^{75} + \cdots - 10y + 1$
c_2, c_7	$y^{76} + 41y^{75} + \cdots + 2y + 1$
c_3, c_6	$y^{76} - 63y^{75} + \cdots + 659y + 4$
c_4, c_5, c_{10}	$y^{76} - 71y^{75} + \cdots + 2y + 1$
c_8	$y^{76} - 23y^{75} + \cdots + 1083362y + 491401$
c_9, c_{12}	$y^{76} + 65y^{75} + \cdots + 174y + 1$
c_{11}	$y^{76} - 27y^{75} + \cdots - 2910169y + 69696$