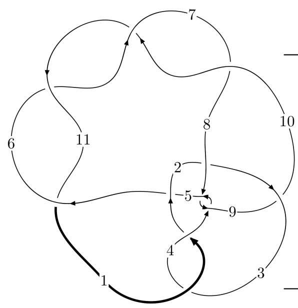
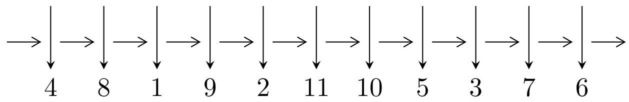
$11a_{299}$ ($K11a_{299}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -3.98094\times 10^{27}u^{50} + 3.57674\times 10^{27}u^{49} + \cdots + 5.12235\times 10^{28}b - 4.16694\times 10^{28},$$
$$4.56338\times 10^{28}u^{50} + 8.09970\times 10^{28}u^{49} + \cdots + 5.12235\times 10^{28}a + 2.57618\times 10^{28},\ u^{51} + 2u^{50} + \cdots + u^2 - 1\rangle$$
$$I_2^u = \langle u^2 + 5b + 3u + 4,\ 4u^2 + 5a - 8u + 6,\ u^3 - u^2 + 2u - 1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 54 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.
$$\boldsymbol{I_1^u = \langle -3.98\times 10^{27}u^{50}+3.58\times 10^{27}u^{49}+\cdots+5.12\times 10^{28}b-4.17\times 10^{28},\ 4.56\times 10^{28}u^{50}+8.10\times 10^{28}u^{49}+\cdots+5.12\times 10^{28}a+2.58\times 10^{28},\ u^{51}+2u^{50}+\cdots+u^2-1\rangle}$$

(i) Arc colorings

$$a_6 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_7 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-u\\u\end{pmatrix}$$
$$a_4 = \begin{pmatrix}-0.890878u^{50}-1.58125u^{49}+\cdots+2.76933u-0.502929\\0.0777171u^{50}-0.0698262u^{49}+\cdots-0.830913u+0.813483\end{pmatrix}$$
$$a_2 = \begin{pmatrix}-0.911790u^{50}-1.62215u^{49}+\cdots+3.55461u-0.444712\\0.00216816u^{50}-0.149791u^{49}+\cdots-0.143535u+0.845107\end{pmatrix}$$
$$a_3 = \begin{pmatrix}-0.848184u^{50}-1.53135u^{49}+\cdots+1.95617u-0.527682\\0.0350226u^{50}-0.119723u^{49}+\cdots-0.0177518u+0.838236\end{pmatrix}$$
$$a_5 = \begin{pmatrix}0.219194u^{50}+0.0575194u^{49}+\cdots-2.71987u+0.983462\\0.568042u^{50}+1.43143u^{49}+\cdots-0.564791u+0.0862524\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}u\\u^3+u\end{pmatrix}$$
$$a_8 = \begin{pmatrix}u^2+1\\u^4+2u^2\end{pmatrix}$$
$$a_9 = \begin{pmatrix}1.21389u^{50}+2.29120u^{49}+\cdots-2.54183u+0.639066\\-0.214736u^{50}-0.901043u^{49}+\cdots+1.59632u+0.327975\end{pmatrix}$$
$$a_9 = \begin{pmatrix}1.21389u^{50}+2.29120u^{49}+\cdots-2.54183u+0.639066\\-0.214736u^{50}-0.901043u^{49}+\cdots+1.59632u+0.327975\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.0485520u^{50}-0.908190u^{49}+\cdots-14.7258u-8.93442$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_3	$u^{51} - 4u^{50} + \cdots - 49u + 25$
c_2	$u^{51} + u^{50} + \cdots + 380u + 200$
c_4, c_8	$u^{51} + 2u^{50} + \cdots + 4u + 1$
c_5	$5(5u^{51} - 28u^{50} + \cdots - 30u + 857)$
c_6, c_7, c_{10} c_{11}	$u^{51} - 2u^{50} + \cdots - u^2 + 1$
c_9	$5(5u^{51} - 9u^{50} + \cdots + 1703u + 239)$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3	$y^{51} - 26y^{50} + \cdots + 17851y - 625$
c_2	$y^{51} + 21y^{50} + \cdots - 118000y - 40000$
c_4, c_8	$y^{51} + 28y^{50} + \cdots + 2y - 1$
c_5	$25(25y^{51} + 176y^{50} + \cdots - 1375442y - 734449)$
c_6, c_7, c_{10} c_{11}	$y^{51} + 60y^{50} + \cdots + 2y - 1$
c_9	$25(25y^{51} + 739y^{50} + \cdots - 637947y - 57121)$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.552527 + 0.820307I$ $a = 0.48391 - 1.52868I$ $b = -1.72817 + 0.85216I$	$2.62483 + 11.59540I$	$-7.79067 - 8.85645I$
$u = -0.552527 - 0.820307I$ $a = 0.48391 + 1.52868I$ $b = -1.72817 - 0.85216I$	$2.62483 - 11.59540I$	$-7.79067 + 8.85645I$
$u = 0.589306 + 0.788540I$ $a = -0.51919 - 1.38595I$ $b = 1.55822 + 0.77897I$	$-0.80955 - 5.70999I$	$-10.32903 + 7.24097I$
$u = 0.589306 - 0.788540I$ $a = -0.51919 + 1.38595I$ $b = 1.55822 - 0.77897I$	$-0.80955 + 5.70999I$	$-10.32903 - 7.24097I$
$u = -0.433100 + 0.988087I$ $a = 0.85921 - 1.15463I$ $b = -0.784864 + 0.164197I$	$3.75291 - 3.24873I$	$-11.00000 + 0.I$
$u = -0.433100 - 0.988087I$ $a = 0.85921 + 1.15463I$ $b = -0.784864 - 0.164197I$	$3.75291 + 3.24873I$	$-11.00000 + 0.I$
$u = -0.376973 + 0.809467I$ $a = 1.031830 - 0.475824I$ $b = -0.043546 - 0.349975I$	$5.59371 + 5.41403I$	$-4.14016 - 6.52359I$
$u = -0.376973 - 0.809467I$ $a = 1.031830 + 0.475824I$ $b = -0.043546 + 0.349975I$	$5.59371 - 5.41403I$	$-4.14016 + 6.52359I$
$u = 0.249787 + 0.812726I$ $a = -0.469781 - 0.492664I$ $b = -0.095865 + 0.184201I$	$1.73380 - 1.81855I$	$-6.35906 + 4.36354I$
$u = 0.249787 - 0.812726I$ $a = -0.469781 + 0.492664I$ $b = -0.095865 - 0.184201I$	$1.73380 + 1.81855I$	$-6.35906 - 4.36354I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.493565 + 0.692270I$ $a = 0.247144 - 1.224100I$ $b = -1.21189 + 1.00104I$	$4.68147 + 1.04951I$	$-4.16172 - 4.32794I$
$u = -0.493565 - 0.692270I$ $a = 0.247144 + 1.224100I$ $b = -1.21189 - 1.00104I$	$4.68147 - 1.04951I$	$-4.16172 + 4.32794I$
$u = 0.773905 + 0.191317I$ $a = -0.320071 - 0.624747I$ $b = 1.381640 - 0.030498I$	$-2.64708 + 1.15805I$	$-10.73331 - 5.02870I$
$u = 0.773905 - 0.191317I$ $a = -0.320071 + 0.624747I$ $b = 1.381640 + 0.030498I$	$-2.64708 - 1.15805I$	$-10.73331 + 5.02870I$
$u = -0.744224 + 0.089987I$ $a = 0.047354 - 0.638462I$ $b = -1.47794 - 0.27354I$	$0.42114 - 7.27131I$	$-10.81656 + 5.67006I$
$u = -0.744224 - 0.089987I$ $a = 0.047354 + 0.638462I$ $b = -1.47794 + 0.27354I$	$0.42114 + 7.27131I$	$-10.81656 - 5.67006I$
$u = 0.128736 + 0.681128I$ $a = 1.63090 - 0.76962I$ $b = -1.72989 + 2.00427I$	$1.377800 + 0.247335I$	$-11.41702 + 6.59841I$
$u = 0.128736 - 0.681128I$ $a = 1.63090 + 0.76962I$ $b = -1.72989 - 2.00427I$	$1.377800 - 0.247335I$	$-11.41702 - 6.59841I$
$u = 0.328726 + 0.602476I$ $a = -0.683354 + 0.933926I$ $b = -1.027660 - 0.198210I$	$0.09032 - 4.00238I$	$-9.47119 + 9.47766I$
$u = 0.328726 - 0.602476I$ $a = -0.683354 - 0.933926I$ $b = -1.027660 + 0.198210I$	$0.09032 + 4.00238I$	$-9.47119 - 9.47766I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.309159 + 1.281950I$ $a = -0.53813 - 1.48328I$ $b = 0.630951 + 0.896457I$	$1.88408 - 2.74356I$	0
$u = 0.309159 - 1.281950I$ $a = -0.53813 + 1.48328I$ $b = 0.630951 - 0.896457I$	$1.88408 + 2.74356I$	0
$u = -0.235448 + 0.507844I$ $a = 0.06586 + 1.89337I$ $b = 1.226960 - 0.240501I$	$-1.46138 + 0.98661I$	$-12.15795 - 1.22039I$
$u = -0.235448 - 0.507844I$ $a = 0.06586 - 1.89337I$ $b = 1.226960 + 0.240501I$	$-1.46138 - 0.98661I$	$-12.15795 + 1.22039I$
$u = -0.535402 + 0.073202I$ $a = 0.434598 - 1.044040I$ $b = -0.708461 - 0.403158I$	$3.00953 + 2.35838I$	$-8.15249 - 2.65728I$
$u = -0.535402 - 0.073202I$ $a = 0.434598 + 1.044040I$ $b = -0.708461 + 0.403158I$	$3.00953 - 2.35838I$	$-8.15249 + 2.65728I$
$u = -0.271262 + 0.396700I$ $a = 0.75415 + 2.38170I$ $b = 0.944727 - 0.152860I$	$-1.67074 + 1.07820I$	$-12.01082 - 5.84608I$
$u = -0.271262 - 0.396700I$ $a = 0.75415 - 2.38170I$ $b = 0.944727 + 0.152860I$	$-1.67074 - 1.07820I$	$-12.01082 + 5.84608I$
$u = -0.01718 + 1.55667I$ $a = -0.37477 + 2.03786I$ $b = 0.552519 - 1.004140I$	$5.04838 + 1.69001I$	0
$u = -0.01718 - 1.55667I$ $a = -0.37477 - 2.03786I$ $b = 0.552519 + 1.004140I$	$5.04838 - 1.69001I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.04180 + 1.57969I$ $a = -1.09580 + 1.51782I$ $b = 1.49270 - 0.77222I$	$5.80181 + 1.83329I$	0
$u = -0.04180 - 1.57969I$ $a = -1.09580 - 1.51782I$ $b = 1.49270 + 0.77222I$	$5.80181 - 1.83329I$	0
$u = 0.06969 + 1.58540I$ $a = 0.646529 + 0.973357I$ $b = -1.354660 - 0.387992I$	$7.57583 - 5.34940I$	0
$u = 0.06969 - 1.58540I$ $a = 0.646529 - 0.973357I$ $b = -1.354660 + 0.387992I$	$7.57583 + 5.34940I$	0
$u = 0.339596 + 0.188204I$ $a = -1.55128 + 2.09918I$ $b = -0.402028 + 0.283631I$	$-1.01423 + 1.50344I$	$-14.02114 - 0.26378I$
$u = 0.339596 - 0.188204I$ $a = -1.55128 - 2.09918I$ $b = -0.402028 - 0.283631I$	$-1.01423 - 1.50344I$	$-14.02114 + 0.26378I$
$u = 0.02693 + 1.61334I$ $a = 3.90639 - 0.28673I$ $b = -3.98695 + 0.78800I$	$9.33157 - 0.28182I$	0
$u = 0.02693 - 1.61334I$ $a = 3.90639 + 0.28673I$ $b = -3.98695 - 0.78800I$	$9.33157 + 0.28182I$	0
$u = -0.15866 + 1.61313I$ $a = 0.90457 - 2.22903I$ $b = -1.33704 + 1.71038I$	$12.51670 + 3.55318I$	0
$u = -0.15866 - 1.61313I$ $a = 0.90457 + 2.22903I$ $b = -1.33704 - 1.71038I$	$12.51670 - 3.55318I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.10468+1.64228I$ $a=0.285194+0.100077I$ $b=0.495111-0.386510I$	$14.0417+7.2484I$	0
$u=-0.10468-1.64228I$ $a=0.285194-0.100077I$ $b=0.495111+0.386510I$	$14.0417-7.2484I$	0
$u=0.08123+1.64771I$ $a=0.021744-0.179863I$ $b=-0.560164+0.015522I$	$10.29890-3.16367I$	0
$u=0.08123-1.64771I$ $a=0.021744+0.179863I$ $b=-0.560164-0.015522I$	$10.29890+3.16367I$	0
$u=0.17216+1.64138I$ $a=-1.15226-2.05629I$ $b=1.58595+1.37531I$	$7.44997-8.60283I$	0
$u=0.17216-1.64138I$ $a=-1.15226+2.05629I$ $b=1.58595-1.37531I$	$7.44997+8.60283I$	0
$u=-0.16225+1.65033I$ $a=1.31880-2.12033I$ $b=-1.83667+1.38127I$	$11.0558+14.3418I$	0
$u=-0.16225-1.65033I$ $a=1.31880+2.12033I$ $b=-1.83667-1.38127I$	$11.0558-14.3418I$	0
$u=-0.08999+1.68712I$ $a=0.334351-0.580821I$ $b=0.022884+0.143685I$	$13.10850-1.33730I$	0
$u=-0.08999-1.68712I$ $a=0.334351+0.580821I$ $b=0.022884-0.143685I$	$13.10850+1.33730I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.295696$ $a = -0.935819$ $b = 0.188257$	-0.590385	-17.0960

II. $\boldsymbol{I_2^u = \langle u^2 + 5b + 3u + 4,\ 4u^2 + 5a - 8u + 6,\ u^3 - u^2 + 2u - 1\rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -\frac{4}{5}u^2 + \frac{8}{5}u - \frac{6}{5} \\ -\frac{1}{5}u^2 - \frac{3}{5}u - \frac{4}{5} \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -\frac{4}{5}u^2 + \frac{3}{5}u - \frac{6}{5} \\ -\frac{1}{5}u^2 + \frac{2}{5}u - \frac{4}{5} \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -\frac{4}{5}u^2 + \frac{3}{5}u - \frac{6}{5} \\ -\frac{1}{5}u^2 + \frac{2}{5}u - \frac{4}{5} \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -\frac{13}{25}u^2 + \frac{6}{25}u + \frac{8}{25} \\ -\frac{7}{25}u^2 + \frac{9}{25}u - \frac{13}{25} \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u \\ u^2 - u + 1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^2 + 1 \\ u^2 - u + 1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} \frac{4}{25}u^2 + \frac{27}{25}u + \frac{11}{25} \\ \frac{31}{25}u^2 - \frac{22}{25}u + \frac{29}{25} \end{pmatrix}$$
$$a_9 = \begin{pmatrix} \frac{4}{25}u^2 + \frac{27}{25}u + \frac{11}{25} \\ \frac{31}{25}u^2 - \frac{22}{25}u + \frac{29}{25} \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{12}{25}u^2 + \frac{69}{25}u - \frac{408}{25}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u-1)^3$
c_2	u^3
c_3	$(u+1)^3$
c_4	u^3+u^2-1
c_5	$5(5u^3+7u^2+4u+1)$
c_6, c_7	u^3-u^2+2u-1
c_8	u^3-u^2+1
c_9	$5(5u^3+4u^2-u-1)$
c_{10}, c_{11}	u^3+u^2+2u+1

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3	$(y-1)^3$
c_2	y^3
c_4, c_8	$y^3 - y^2 + 2y - 1$
c_5	$25(25y^3 - 9y^2 + 2y - 1)$
c_6, c_7, c_{10} c_{11}	$y^3 + 3y^2 + 2y - 1$
c_9	$25(25y^3 - 26y^2 + 9y - 1)$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.215080 + 1.307140I$ $a = 0.47401 + 1.64160I$ $b = -0.596576 - 0.896741I$	$1.37919 - 2.82812I$	$-14.9284 + 3.3378I$
$u = 0.215080 - 1.307140I$ $a = 0.47401 - 1.64160I$ $b = -0.596576 + 0.896741I$	$1.37919 + 2.82812I$	$-14.9284 - 3.3378I$
$u = 0.569840$ $a = -0.548030$ $b = -1.20685$	-2.75839	-14.9030

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^3)(u^{51}-4u^{50}+\cdots-49u+25)$
c_2	$u^3(u^{51}+u^{50}+\cdots+380u+200)$
c_3	$((u+1)^3)(u^{51}-4u^{50}+\cdots-49u+25)$
c_4	$(u^3+u^2-1)(u^{51}+2u^{50}+\cdots+4u+1)$
c_5	$25(5u^3+7u^2+4u+1)(5u^{51}-28u^{50}+\cdots-30u+857)$
c_6, c_7	$(u^3-u^2+2u-1)(u^{51}-2u^{50}+\cdots-u^2+1)$
c_8	$(u^3-u^2+1)(u^{51}+2u^{50}+\cdots+4u+1)$
c_9	$25(5u^3+4u^2-u-1)(5u^{51}-9u^{50}+\cdots+1703u+239)$
c_{10}, c_{11}	$(u^3+u^2+2u+1)(u^{51}-2u^{50}+\cdots-u^2+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_3	$((y-1)^3)(y^{51} - 26y^{50} + \cdots + 17851y - 625)$
c_2	$y^3(y^{51} + 21y^{50} + \cdots - 118000y - 40000)$
c_4, c_8	$(y^3 - y^2 + 2y - 1)(y^{51} + 28y^{50} + \cdots + 2y - 1)$
c_5	$625(25y^3 - 9y^2 + 2y - 1)$ $\cdot (25y^{51} + 176y^{50} + \cdots - 1375442y - 734449)$
c_6, c_7, c_{10} c_{11}	$(y^3 + 3y^2 + 2y - 1)(y^{51} + 60y^{50} + \cdots + 2y - 1)$
c_9	$625(25y^3 - 26y^2 + 9y - 1)(25y^{51} + 739y^{50} + \cdots - 637947y - 57121)$