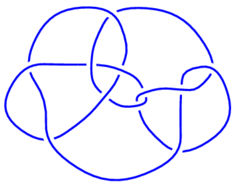
$11n_{47}$ ($K11n_{47}$)



[1]

Arc Sequences

$$\to \downarrow_{4} \to \downarrow_{1} \to \downarrow_{7} \to \downarrow_{2} \to \downarrow_{11} \to \uparrow_{10} \to \downarrow_{4} \to \uparrow_{6} \to \downarrow_{1} \to \uparrow_{8} \to \downarrow_{9} \to$$

Solving Sequence

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

Representation Ideals

$$I = \bigcap_{i=1}^{3} I_i^u$$

$$\begin{aligned}
I_1^u &= \langle u^3 + u^2 - 1,\ b + 1,\ 2u^2 + a + 4u + 4\rangle \\
I_2^u &= \langle b^6 - b^5 - b^4 + 2b^3 - b + 1,\ a - 1,\ u - 1\rangle \\
I_3^u &= \langle u^{35} + 8u^{34} + \cdots + 9u + 1,\ -1.64269 \times 10^{25}u^{34} - 1.05850 \times 10^{26}u^{33} + \cdots + 2.49168 \times 10^{25}a - 1.38382 \times 10 \\
&\quad 7.57271 \times 10^{25}u^{34} + 6.48827 \times 10^{26}u^{33} + \cdots + 7.97336 \times 10^{26}b - 7.26255 \times 10^{26}\rangle
\end{aligned}$$

There are 3 irreducible components with 44 representations.

[1]The knot diagram image is adapter from "C. Livingston and A. H. Moore, KnotInfo: Table of Knot Invariants, http://www.indiana.edu/ knotinfo"

I. $I_1^u = \langle u^3 + u^2 - 1,\ b + 1,\ 2u^2 + a + 4u + 4 \rangle$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u \\ u^2 + u - 1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -2u^2 - 4u - 4 \\ -1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -2u^2 - 4u - 3 \\ -1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -2u^2 - 4u - 3 \\ -1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -7u^2 - 13u - 9 \\ -u - 2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u \\ u^2 + u - 1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u^2 + 1 \\ u^2 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u \\ 2u^2 + u - 2 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u \\ 2u^2 + u - 2 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.877439 - 0.744862I$ $a = -0.920404 + 0.365165I$ $b = -1.00000$	$1.37919 - 2.82812I$	$-9.0124 + 12.0277I$
$u = -0.877439 + 0.744862I$ $a = -0.920404 - 0.365165I$ $b = -1.00000$	$1.37919 + 2.82812I$	$-9.0124 - 12.0277I$
$u = \quad 0.754878$ $a = -8.15919$ $b = -1.00000$	-2.75839	-102.975

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

(i) Arc colorings

$$a_1 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_4 = \begin{pmatrix}0\\1\end{pmatrix}$$
$$a_2 = \begin{pmatrix}1\\1\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-1\\0\end{pmatrix}$$
$$a_9 = \begin{pmatrix}1\\b\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-b+1\\b\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}-b+1\\-b^2\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-b^3+b^2-1\\-b^4\end{pmatrix}$$
$$a_7 = \begin{pmatrix}0\\b^5-b^4-2b^3+b^2+b-1\end{pmatrix}$$
$$a_3 = \begin{pmatrix}0\\1\end{pmatrix}$$
$$a_8 = \begin{pmatrix}0\\b^5-b^4-2b^3+b^2+b-1\end{pmatrix}$$
$$a_8 = \begin{pmatrix}0\\b^5-b^4-2b^3+b^2+b-1\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = 1.00000$ $b = -1.002193 - 0.295542I$	$-3.53554 - 0.92430I$	$-12.60470 - 5.55069I$
$u = 1.00000$ $a = 1.00000$ $b = -1.002193 + 0.295542I$	$-3.53554 + 0.92430I$	$-12.60470 + 5.55069I$
$u = 1.00000$ $a = 1.00000$ $b = 0.428243 - 0.664531I$	$0.245672 - 0.924305I$	$-5.68949 + 0.25702I$
$u = 1.00000$ $a = 1.00000$ $b = 0.428243 + 0.664531I$	$0.245672 + 0.924305I$	$-5.68949 - 0.25702I$
$u = 1.00000$ $a = 1.00000$ $b = 1.073950 - 0.558752I$	$-1.64493 + 5.69302I$	$-11.7058 - 8.3306I$
$u = 1.00000$ $a = 1.00000$ $b = 1.073950 + 0.558752I$	$-1.64493 - 5.69302I$	$-11.7058 + 8.3306I$

III. $I^u_3 =$
$\langle u^{35}+8u^{34}+\cdots+9u+1,\ -1.64\times10^{25}u^{34}-1.06\times10^{26}u^{33}+\cdots+2.49\times10^{25}a-1.38\times10^{26},\ 7.57\times10^{25}u^{34}+6.49\times10^{26}u^{33}+\cdots+7.97\times10^{26}b-7.26\times10^{26}\rangle$

(i) Arc colorings

$$a_1 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_4 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_2 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-u\\-u^3+u\end{pmatrix}$$
$$a_9 = \begin{pmatrix}0.659269u^{34}+4.24813u^{33}+\cdots+120.228u+5.55377\\-0.0949751u^{34}-0.813743u^{33}+\cdots+1.09979u+0.910851\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}0.754244u^{34}+5.06188u^{33}+\cdots+119.128u+4.64292\\-0.0949751u^{34}-0.813743u^{33}+\cdots+1.09979u+0.910851\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}-0.894280u^{34}-6.14049u^{33}+\cdots-123.987u-2.97552\\-0.0130827u^{34}-0.0126909u^{33}+\cdots-5.06131u-1.20991\end{pmatrix}$$
$$a_6 = \begin{pmatrix}1.77774u^{34}+17.8440u^{33}+\cdots+23.8681u-10.0326\\-0.414794u^{34}-1.96166u^{33}+\cdots+6.00083u+0.386377\end{pmatrix}$$
$$a_7 = \begin{pmatrix}0.135945u^{34}+1.32830u^{33}+\cdots+28.8699u-0.0316372\\0.201606u^{34}+1.17050u^{33}+\cdots+2.73205u+0.337551\end{pmatrix}$$
$$a_3 = \begin{pmatrix}-u^2+1\\u^2\end{pmatrix}$$
$$a_8 = \begin{pmatrix}0.135945u^{34}+1.32830u^{33}+\cdots+28.8699u-0.0316372\\-0.239495u^{34}-1.52839u^{33}+\cdots+0.429444u+0.0968115\end{pmatrix}$$
$$a_8 = \begin{pmatrix}0.135945u^{34}+1.32830u^{33}+\cdots+28.8699u-0.0316372\\-0.239495u^{34}-1.52839u^{33}+\cdots+0.429444u+0.0968115\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.75068 - 0.06096I$ $a = 1.46330 - 0.02059I$ $b = 1.82396 + 0.77537I$	$-14.4753 - 2.5419I$	$-13.83151 + 2.70823I$
$u = -1.75068 + 0.06096I$ $a = 1.46330 + 0.02059I$ $b = 1.82396 - 0.77537I$	$-14.4753 + 2.5419I$	$-13.83151 - 2.70823I$
$u = -1.72022 - 0.43828I$ $a = -1.34465 + 0.58112I$ $b = -1.49438 - 0.29415I$	$-15.2163 - 5.6356I$	$-10.75742 + 2.79420I$
$u = -1.72022 + 0.43828I$ $a = -1.34465 - 0.58112I$ $b = -1.49438 + 0.29415I$	$-15.2163 + 5.6356I$	$-10.75742 - 2.79420I$
$u = -1.70107 - 0.39786I$ $a = -1.50913 + 0.63392I$ $b = -1.58042 - 0.58476I$	$-15.7071 - 13.7623I$	$-9.89343 + 6.24021I$
$u = -1.70107 + 0.39786I$ $a = -1.50913 - 0.63392I$ $b = -1.58042 + 0.58476I$	$-15.7071 + 13.7623I$	$-9.89343 - 6.24021I$
$u = -1.68600$ $a = 2.34569$ $b = 1.28757$	-11.4779	0.0900530
$u = -1.68299 - 0.18586I$ $a = 0.383087 + 0.343481I$ $b = 0.25892 + 1.52764I$	$-9.90660 - 6.51942I$	$-9.48439 + 5.38265I$
$u = -1.68299 + 0.18586I$ $a = 0.383087 - 0.343481I$ $b = 0.25892 - 1.52764I$	$-9.90660 + 6.51942I$	$-9.48439 - 5.38265I$
$u = -1.63022 - 0.11868I$ $a = 0.069536 - 0.327596I$ $b = 0.340175 + 0.686101I$	$-9.25057 - 1.88240I$	$-8.12432 - 1.64929I$

Solution to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.63022 + 0.11868I$ $a = 0.069536 + 0.327596I$ $b = 0.340175 - 0.686101I$	$-9.25057 + 1.88240I$	$-8.12432 + 1.64929I$
$u = -0.990139 - 0.655507I$ $a = -0.886995 + 0.313990I$ $b = -0.934664 + 0.185167I$	$1.54213 - 2.47872I$	$-0.53499 - 5.93000I$
$u = -0.990139 + 0.655507I$ $a = -0.886995 - 0.313990I$ $b = -0.934664 - 0.185167I$	$1.54213 + 2.47872I$	$-0.53499 + 5.93000I$
$u = -0.686181 - 0.154265I$ $a = -1.246624 + 0.427424I$ $b = -1.126278 + 0.497250I$	$-1.08296 + 5.42643I$	$-0.21975 - 3.30530I$
$u = -0.686181 + 0.154265I$ $a = -1.246624 - 0.427424I$ $b = -1.126278 - 0.497250I$	$-1.08296 - 5.42643I$	$-0.21975 + 3.30530I$
$u = -0.294421 - 0.137620I$ $a = -0.647696 + 1.089553I$ $b = -0.225869 + 0.594231I$	$1.40601 - 1.20005I$	$2.74470 + 1.99044I$
$u = -0.294421 + 0.137620I$ $a = -0.647696 - 1.089553I$ $b = -0.225869 - 0.594231I$	$1.40601 + 1.20005I$	$2.74470 - 1.99044I$
$u = -0.0306219 - 0.0974691I$ $a = -1.93881 - 9.66636I$ $b = 1.038378 - 0.224787I$	$-1.92040 + 0.80331I$	$-4.44102 + 0.15082I$
$u = -0.0306219 + 0.0974691I$ $a = -1.93881 + 9.66636I$ $b = 1.038378 + 0.224787I$	$-1.92040 - 0.80331I$	$-4.44102 - 0.15082I$
$u = 0.605532 - 0.380104I$ $a = -1.67784 + 0.73020I$ $b = 0.361624 + 0.080090I$	$-1.46738 + 0.11420I$	$-8.20214 - 0.34884I$

Solution to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.605532 + 0.380104I$ $a = -1.67784 - 0.73020I$ $b = 0.361624 - 0.080090I$	$-1.46738 - 0.11420I$	$-8.20214 + 0.34884I$
$u = 0.656190 - 1.188229I$ $a = -0.419118 - 0.434391I$ $b = -1.47252 - 0.05220I$	$-7.58070 - 0.56154I$	$-10.57137 + 0.23440I$
$u = 0.656190 + 1.188229I$ $a = -0.419118 + 0.434391I$ $b = -1.47252 + 0.05220I$	$-7.58070 + 0.56154I$	$-10.57137 - 0.23440I$
$u = 0.679243 - 0.583622I$ $a = -0.155632 + 1.137359I$ $b = 0.397949 - 0.909235I$	$-1.63296 + 3.48211I$	$-7.94104 - 7.54592I$
$u = 0.679243 + 0.583622I$ $a = -0.155632 - 1.137359I$ $b = 0.397949 + 0.909235I$	$-1.63296 - 3.48211I$	$-7.94104 + 7.54592I$
$u = 0.704998$ $a = 11.0900$ $b = 1.00991$	-2.72892	194.387
$u = 0.730316 - 1.119096I$ $a = -0.576099 - 0.700870I$ $b = -1.51689 + 0.33803I$	$-7.84770 + 8.00129I$	$-9.44018 - 5.26349I$
$u = 0.730316 + 1.119096I$ $a = -0.576099 + 0.700870I$ $b = -1.51689 - 0.33803I$	$-7.84770 - 8.00129I$	$-9.44018 + 5.26349I$
$u = 0.779230$ $a = -1.08295$ $b = -0.0140385$	-1.12597	-9.35809
$u = 0.964380 - 0.326022I$ $a = 0.35491 + 1.77356I$ $b = 1.401851 - 0.174541I$	$-4.47629 + 0.99972I$	$-15.2464 - 0.4133I$

Solution to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.964380 + 0.326022I$ $a = 0.35491 - 1.77356I$ $b = 1.401851 + 0.174541I$	$-4.47629 - 0.99972I$	$-15.2464 + 0.4133I$
$u = 1.204595 - 0.063415I$ $a = -0.412107 + 0.706810I$ $b = 0.628022 + 0.554154I$	$-3.08874 - 1.42303I$	$-6.41632 + 5.79805I$
$u = 1.204595 + 0.063415I$ $a = -0.412107 - 0.706810I$ $b = 0.628022 - 0.554154I$	$-3.08874 + 1.42303I$	$-6.41632 - 5.79805I$
$u = 1.74717 - 0.03675I$ $a = -1.63248 - 0.11344I$ $b = -1.54159 - 0.19584I$	$-10.19429 - 4.27290I$	$-10.69965 + 2.77091I$
$u = 1.74717 + 0.03675I$ $a = -1.63248 + 0.11344I$ $b = -1.54159 + 0.19584I$	$-10.19429 + 4.27290I$	$-10.69965 - 2.77091I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1	$(u-1)^6(u^3+u^2-1)(u^{35}+8u^{34}+\cdots+9u+1)$
c_2	$(u+1)^6(u^3+u^2+2u+1)(u^{35}+42u^{34}+\cdots-129u+1)$
c_3	$u^6(u^3-u^2+2u-1)(u^{35}+2u^{34}+\cdots-320u-64)$
c_4	$(u+1)^6(u^3-u^2+1)(u^{35}+8u^{34}+\cdots+9u+1)$
c_5	$(u^3-2u^2-3u-1)(u^6-3u^5+5u^4-4u^3+2u^2-u+1)$ $(u^{35}+8u^{34}+\cdots+73u-31)$
c_6	$(u^3-2u^2-3u-1)(u^6-u^5-u^4+2u^3-u+1)$ $(u^{35}+4u^{34}+\cdots+1417u-1219)$
c_7	$u^6(u^3+u^2+2u+1)(u^{35}+2u^{34}+\cdots-320u-64)$
c_8	$(u^3-3u^2+2u+1)(u^6-3u^5+5u^4-4u^3+2u^2-u+1)$ $(u^{35}+3u^{34}+\cdots+2u+1)$
c_9	$(u-1)^3(u^6+u^5+\cdots+u+1)(u^{35}+5u^{34}+\cdots+67u+1)$
c_{10}	$u^3(u^6+u^5+\cdots+u+1)(u^{35}+6u^{34}+\cdots+124u-8)$
c_{11}	$(u+1)^3(u^6-u^5+\cdots-u+1)(u^{35}+5u^{34}+\cdots+67u+1)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_4	$(y-1)^6(y^3-y^2+2y-1)(y^{35}-42y^{34}+\cdots-129y-1)$
c_2	$(y-1)^6(y^3+3y^2+2y-1)(y^{35}-90y^{34}+\cdots+6323y-1)$
c_3, c_7	$y^6(y^3+3y^2+2y-1)(y^{35}-36y^{34}+\cdots-20480y-4096)$
c_5	$(y^3-10y^2+5y-1)(y^6+y^5+5y^4+6y^2+3y+1)$ $(y^{35}-52y^{34}+\cdots+29509y-961)$
c_6	$(y^3-10y^2+5y-1)(y^6-3y^5+5y^4-4y^3+2y^2-y+1)$ $(y^{35}-4y^{34}+\cdots+25178641y-1485961)$
c_8	$(y^3-5y^2+10y-1)(y^6+y^5+5y^4+6y^2+3y+1)$ $(y^{35}+y^{34}+\cdots+14y-1)$
c_9, c_{11}	$(y-1)^3(y^6-3y^5+5y^4-4y^3+2y^2-y+1)$ $(y^{35}-33y^{34}+\cdots+5091y-1)$
c_{10}	$y^3(y^6-3y^5+\cdots-y+1)(y^{35}+18y^{34}+\cdots+7312y-64)$