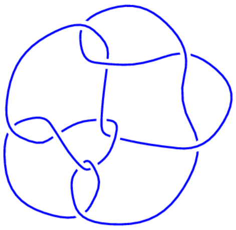
$11n_{32}$ $(K11n_{32})$



[1]

Arc Sequences

$\rightarrow\downarrow\rightarrow\downarrow\rightarrow\uparrow\rightarrow\downarrow\rightarrow\uparrow\rightarrow\uparrow\rightarrow\downarrow\rightarrow\uparrow\rightarrow\uparrow\rightarrow\downarrow\rightarrow\uparrow\rightarrow$

4 1 7 2 8 4 10 5 11 7 9

Solving Sequence

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

Representation Ideals

$$I = I_1^u \bigcap I_1^v$$

$$\begin{aligned} I_1^u = \langle & u^{38} + 5u^{37} + \cdots + 104u + 16, \\ & -4.56249 \times 10^{53} u^{37} - 1.98366 \times 10^{54} u^{36} + \cdots + 3.00630 \times 10^{54} b - 1.18639 \times 10^{55}, \\ & 1.39340 \times 10^{54} u^{37} + 6.28549 \times 10^{54} u^{36} + \cdots + 1.50315 \times 10^{54} a + 4.25205 \times 10^{55} \rangle \end{aligned}$$

$$I_1^v = \langle b + v + 2,\ v^4 + 5v^3 + 7v^2 + 2v + 1,\ a \rangle$$

There are 2 irreducible components with 42 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. $I_1^u = \langle u^{38}+5u^{37}+\cdots+104u+16,\ -4.56\times10^{53}u^{37}-1.98\times10^{54}u^{36}+\cdots+3.01\times10^{54}b-1.19\times10^{55},\ 1.39\times10^{54}u^{37}+6.29\times10^{54}u^{36}+\cdots+1.50\times10^{54}a+4.25\times10^{55}\rangle$

(i) Arc colorings

$$a_7 = \begin{pmatrix}0\\u\end{pmatrix}$$

$$a_{10} = \begin{pmatrix}-0.926987u^{37} - 4.18155u^{36} + \cdots - 135.593u - 28.2876\\ 0.151764u^{37} + 0.659836u^{36} + \cdots + 18.5840u + 3.94634\end{pmatrix}$$

$$a_8 = \begin{pmatrix}1.22438u^{37} + 5.44528u^{36} + \cdots + 159.909u + 34.0751\\ 0.0453851u^{37} + 0.197052u^{36} + \cdots + 8.02644u + 1.84760\end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix}-0.926987u^{37} - 4.18155u^{36} + \cdots - 135.593u - 28.2876\\ -0.0784391u^{37} - 0.360238u^{36} + \cdots - 13.7357u - 3.30772\end{pmatrix}$$

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

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

$$a_5 = \begin{pmatrix}-0.471885u^{37} - 2.14728u^{36} + \cdots - 70.9792u - 17.1177\\ -0.0642746u^{37} - 0.280900u^{36} + \cdots - 9.18787u - 2.15226\end{pmatrix}$$

$$a_9 = \begin{pmatrix}-1.78274u^{37} - 7.95424u^{36} + \cdots - 250.772u - 53.4037\\ -0.431125u^{37} - 1.91026u^{36} + \cdots - 56.0313u - 11.8301\end{pmatrix}$$

$$a_1 = \begin{pmatrix}0.536159u^{37} + 2.42818u^{36} + \cdots + 80.1670u + 19.2700\\ 0.0631382u^{37} + 0.279519u^{36} + \cdots + 8.50618u + 1.88968\end{pmatrix}$$

$$a_2 = \begin{pmatrix}0.473021u^{37} + 2.14866u^{36} + \cdots + 71.6609u + 17.3803\\ 0.0631382u^{37} + 0.279519u^{36} + \cdots + 8.50618u + 1.88968\end{pmatrix}$$

$$a_2 = \begin{pmatrix}0.473021u^{37} + 2.14866u^{36} + \cdots + 71.6609u + 17.3803\\ 0.0631382u^{37} + 0.279519u^{36} + \cdots + 8.50618u + 1.88968\end{pmatrix}$$

(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
$u = -1.52004 - 0.19492I$ $a = -0.483337 - 0.494284I$ $b = -0.12654 + 1.78294I$	$-4.60338 - 2.49292I$	$-7.66096 + 3.58742I$
$u = -1.52004 + 0.19492I$ $a = -0.483337 + 0.494284I$ $b = -0.12654 - 1.78294I$	$-4.60338 + 2.49292I$	$-7.66096 - 3.58742I$
$u = -1.45402 - 0.43836I$ $a = -0.183345 - 0.763715I$ $b = -0.51595 + 2.64583I$	$6.16601 + 6.56194I$	$4.09697 - 5.13849I$
$u = -1.45402 + 0.43836I$ $a = -0.183345 + 0.763715I$ $b = -0.51595 - 2.64583I$	$6.16601 - 6.56194I$	$4.09697 + 5.13849I$
$u = -1.43940 - 0.79817I$ $a = -0.050059 + 0.782526I$ $b = -0.16177 - 2.72225I$	$1.10073 + 13.93897I$	$-0.18114 - 8.68220I$
$u = -1.43940 + 0.79817I$ $a = -0.050059 - 0.782526I$ $b = -0.16177 + 2.72225I$	$1.10073 - 13.93897I$	$-0.18114 + 8.68220I$
$u = -1.32611 - 0.72615I$ $a = -0.689407 - 0.049253I$ $b = 0.149271 - 0.003685I$	$-0.48850 + 8.10053I$	$-2.17285 - 4.60397I$
$u = -1.32611 + 0.72615I$ $a = -0.689407 + 0.049253I$ $b = 0.149271 + 0.003685I$	$-0.48850 - 8.10053I$	$-2.17285 + 4.60397I$
$u = -1.233006 - 0.050062I$ $a = 0.516758 + 0.875767I$ $b = 0.79276 - 1.84419I$	$2.77951 - 1.18659I$	$2.30827 - 0.46017I$
$u = -1.233006 + 0.050062I$ $a = 0.516758 - 0.875767I$ $b = 0.79276 + 1.84419I$	$2.77951 + 1.18659I$	$2.30827 + 0.46017I$

Solution to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.156071-0.287792I$ $a=\quad 0.609116-0.482021I$ $b=-0.088892+0.144996I$	$0.57801+4.07433I$	$-1.00107-5.21688I$
$u=-1.156071+0.287792I$ $a=\quad 0.609116+0.482021I$ $b=-0.088892-0.144996I$	$0.57801-4.07433I$	$-1.00107+5.21688I$
$u=-0.55366-1.35876I$ $a=\quad 0.289945+0.580664I$ $b=\quad 0.34598-1.37942I$	$-3.24288-0.91080I$	$-5.85440+2.87226I$
$u=-0.55366+1.35876I$ $a=\quad 0.289945-0.580664I$ $b=\quad 0.34598+1.37942I$	$-3.24288+0.91080I$	$-5.85440-2.87226I$
$u=-0.533786-0.030166I$ $a=-1.54034+1.80642I$ $b=-0.289563-0.253759I$	$-8.01967+3.23855I$	$7.49106-4.17157I$
$u=-0.533786+0.030166I$ $a=-1.54034-1.80642I$ $b=-0.289563+0.253759I$	$-8.01967-3.23855I$	$7.49106+4.17157I$
$u=-0.391833-0.533554I$ $a=\quad 0.481578-0.104361I$ $b=-1.014341-0.314495I$	$-1.88768-0.79705I$	$-5.20475-0.93842I$
$u=-0.391833+0.533554I$ $a=\quad 0.481578+0.104361I$ $b=-1.014341+0.314495I$	$-1.88768+0.79705I$	$-5.20475+0.93842I$
$u=-0.26079-1.59013I$ $a=-0.641426+0.289977I$ $b=-1.099622-0.719781I$	$-2.54932-5.85938I$	$-3.38157+9.01726I$
$u=-0.26079+1.59013I$ $a=-0.641426-0.289977I$ $b=-1.099622+0.719781I$	$-2.54932+5.85938I$	$-3.38157-9.01726I$

Solution to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.230395 - 0.298664I$ $a = 2.30144 + 0.56503I$ $b = -0.108722 - 0.621711I$	$0.31225 - 1.54508I$	$2.23777 + 4.87383I$
$u = -0.230395 + 0.298664I$ $a = 2.30144 - 0.56503I$ $b = -0.108722 + 0.621711I$	$0.31225 + 1.54508I$	$2.23777 - 4.87383I$
$u = 0.162866 - 0.630461I$ $a = -1.58426 - 0.48425I$ $b = 0.86678 + 1.49705I$	$-1.35379 + 2.75023I$	$-1.67570 + 2.67847I$
$u = 0.162866 + 0.630461I$ $a = -1.58426 + 0.48425I$ $b = 0.86678 - 1.49705I$	$-1.35379 - 2.75023I$	$-1.67570 - 2.67847I$
$u = 0.275945 - 0.814062I$ $a = 0.852519 - 0.312379I$ $b = 0.698335 - 0.334641I$	$0.77944 - 1.52604I$	$4.36193 + 4.60900I$
$u = 0.275945 + 0.814062I$ $a = 0.852519 + 0.312379I$ $b = 0.698335 + 0.334641I$	$0.77944 + 1.52604I$	$4.36193 - 4.60900I$
$u = 0.278602 - 0.363866I$ $a = 0.68703 - 1.96808I$ $b = -1.48828 + 2.95029I$	$-1.79987 - 1.63683I$	$0.6342 + 22.3814I$
$u = 0.278602 + 0.363866I$ $a = 0.68703 + 1.96808I$ $b = -1.48828 - 2.95029I$	$-1.79987 + 1.63683I$	$0.6342 - 22.3814I$
$u = 1.139293 - 0.198092I$ $a = -0.800512 + 0.400559I$ $b = 0.008420 + 0.191321I$	$0.789901 - 0.872417I$	$0.203682 + 1.029460I$
$u = 1.139293 + 0.198092I$ $a = -0.800512 - 0.400559I$ $b = 0.008420 - 0.191321I$	$0.789901 + 0.872417I$	$0.203682 - 1.029460I$

Solution to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.259828 - 0.356568I$ $a = -0.295658 - 0.923203I$ $b = -0.84185 + 1.97914I$	$2.13442 - 6.62776I$	$1.31703 + 5.48212I$
$u = 1.259828 + 0.356568I$ $a = -0.295658 + 0.923203I$ $b = -0.84185 - 1.97914I$	$2.13442 + 6.62776I$	$1.31703 - 5.48212I$
$u = 1.32367 - 0.54173I$ $a = 0.590584 - 0.104768I$ $b = 0.168421 + 0.170029I$	$1.89024 - 2.00477I$	$0.55164 + 1.57531I$
$u = 1.32367 + 0.54173I$ $a = 0.590584 + 0.104768I$ $b = 0.168421 - 0.170029I$	$1.89024 + 2.00477I$	$0.55164 - 1.57531I$
$u = 1.53818 - 0.08244I$ $a = 0.078634 - 0.734504I$ $b = 0.51262 + 2.63453I$	$7.11789 - 0.13853I$	$5.96603 - 0.12241I$
$u = 1.53818 + 0.08244I$ $a = 0.078634 + 0.734504I$ $b = 0.51262 - 2.63453I$	$7.11789 + 0.13853I$	$5.96603 + 0.12241I$
$u = 1.62072 - 0.63223I$ $a = 0.110732 + 0.695721I$ $b = 0.19294 - 2.63595I$	$3.58657 - 7.12992I$	$2.46388 + 6.33493I$
$u = 1.62072 + 0.63223I$ $a = 0.110732 - 0.695721I$ $b = 0.19294 + 2.63595I$	$3.58657 + 7.12992I$	$2.46388 - 6.33493I$

II. $I_1^v = \langle b + v + 2,\ v^4 + 5v^3 + 7v^2 + 2v + 1,\ a\rangle$

(i) Arc colorings

$$a_7 = \begin{pmatrix} v \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0 \\ -v - 2 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} v \\ v^3 + 4v^2 + 4v \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} v^3 + 2v^2 \\ -v - 2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} v \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 2v^3 + 5v^2 + 2v + 1 \\ 1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 2v^3 + 6v^2 + 2v + 1 \\ v^2 + 2v - 1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -2v^3 - 5v^2 - 2v - 1 \\ -1 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -2v^3 - 5v^2 - 2v \\ -1 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -2v^3 - 5v^2 - 2v \\ -1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_1^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = -2.39923 - 0.32564I$ $a = 0$ $b = 0.399232 + 0.325640I$	$-8.43568 - 3.16396I$	$-11.64142 + 1.04769I$
$v = -2.39923 + 0.32564I$ $a = 0$ $b = 0.399232 - 0.325640I$	$-8.43568 + 3.16396I$	$-11.64142 - 1.04769I$
$v = -0.100768 - 0.400532I$ $a = 0$ $b = -1.89923 + 0.40053I$	$-1.43393 - 1.41510I$	$3.14142 + 7.60220I$
$v = -0.100768 + 0.400532I$ $a = 0$ $b = -1.89923 - 0.40053I$	$-1.43393 + 1.41510I$	$3.14142 - 7.60220I$

III. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1	$(u-1)^4(u^{38}+5u^{37}+\cdots-u+1)$
c_2	$(u+1)^4(u^{38}+15u^{37}+\cdots-81u+1)$
c_3, c_6	$u^4(u^{38}+5u^{37}+\cdots+104u+16)$
c_4	$(u+1)^4(u^{38}+5u^{37}+\cdots-u+1)$
c_5	$(u^4+u^3+3u^2+2u+1)(u^{38}+2u^{37}+\cdots+u+1)$
c_7	$(u^4+u^3+u^2+1)(u^{38}+2u^{37}+\cdots-3u+1)$
c_8	$(u^4-u^3+3u^2-2u+1)(u^{38}+2u^{37}+\cdots+u+1)$
c_9	$(u^4+u^3+3u^2+2u+1)(u^{38}+14u^{37}+\cdots+7u+1)$
c_{10}	$(u^4-u^3+u^2+1)(u^{38}+2u^{37}+\cdots-3u+1)$
c_{11}	$(u^4-u^3+3u^2-2u+1)(u^{38}+14u^{37}+\cdots+7u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_4	$(y-1)^4(y^{38} - 15y^{37} + \cdots + 81y + 1)$
c_2	$(y-1)^4(y^{38} + 21y^{37} + \cdots - 2859y + 1)$
c_3, c_6	$y^4(y^{38} - 27y^{37} + \cdots - 320y + 256)$
c_5, c_8	$(y^4 + 5y^3 + \cdots + 2y + 1)(y^{38} + 10y^{37} + \cdots + 7y + 1)$
c_7, c_{10}	$(y^4 + y^3 + 3y^2 + 2y + 1)(y^{38} + 14y^{37} + \cdots + 7y + 1)$
c_9, c_{11}	$(y^4 + 5y^3 + \cdots + 2y + 1)(y^{38} + 22y^{37} + \cdots + 179y + 1)$