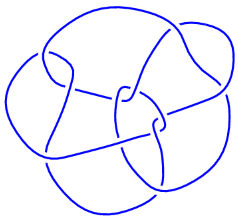
$11n_{142}$ $(K11n_{142})$



[1]

Arc Sequences

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

8 1 9 11 8 10 2 5 1 6 4

Solving Sequence

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

Representation Ideals

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

$$\begin{aligned}
I_1^u = \langle & a^{10} - 4a^9 + 11a^7 + 33a^6 - 88a^5 - 12a^4 + 42a^3 + 162a^2 - 211a + 83, \\
& -54792843a^9 + 2881359619b + \cdots - 8600271276a + 7408962384, \\
& 49304511a^9 + 2881359619u + \cdots + 3667240292a - 4166016932\rangle \\
I_2^u = \langle & u^8 - 2u^7 + 6u^6 - 8u^5 + 11u^4 - 10u^3 + 8u^2 - 5u + 2,\ -u^3 + u^2 + b - 2u + 1, \\
& u^7 + 2u^5 + 2u^4 - 3u^3 + 4u^2 + 2a - 4u + 1\rangle \\
I_3^u = \langle & u^{14} + 5u^{13} + \cdots + 6u + 2,\ -u^9 - 2u^8 - 6u^7 - 8u^6 - 11u^5 - 10u^4 - 5u^3 - 4u^2 + b - 1, \\
& u^{13} + u^{12} - 15u^{10} - 48u^9 - 106u^8 - 178u^7 - 222u^6 - 230u^5 - 175u^4 - 107u^3 - 57u^2 + 2a - 19u - 10\rangle
\end{aligned}$$

There are 3 irreducible components with 32 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. $I_1^u = \langle a^{10} - 4a^9 + \cdots - 211a + 83,\ 2.88 \times 10^9 b - 5.48 \times 10^7 a^9 + \cdots - 8.60 \times 10^9 a + 7.41 \times 10^9,\ 2.88 \times 10^9 u + 4.93 \times 10^7 a^9 + \cdots + 3.67 \times 10^9 a - 4.17 \times 10^9 \rangle$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} a \\ 0.0190163a^9 - 0.0602529a^8 + \cdots + 2.98480a - 2.57134 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -0.0158124a^9 + 0.0334579a^8 + \cdots - 1.44110a + 2.57835 \\ -0.00534172a^9 - 0.0168886a^8 + \cdots + 2.11396a - 1.09256 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0 \\ -0.0171115a^9 + 0.0359931a^8 + \cdots - 1.27275a + 1.44585 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ 0.00340826a^9 - 0.00280516a^8 + \cdots - 0.845493a - 0.117084 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0.0171115a^9 - 0.0359931a^8 + \cdots + 1.27275a - 1.44585 \\ 0.0182012a^9 - 0.0471117a^8 + \cdots + 3.18428a - 0.500860 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -0.00961956a^9 - 0.00136882a^8 + \cdots - 0.117433a - 1.56399 \\ -0.0514022a^9 + 0.132388a^8 + \cdots - 5.75102a + 2.83595 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0.0383744a^9 - 0.130951a^8 + \cdots + 6.47908a - 3.28286 \\ -0.0479940a^9 + 0.129583a^8 + \cdots - 6.59651a + 2.71887 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -0.0104707a^9 + 0.0503464a^8 + \cdots - 3.55506a + 3.67091 \\ -0.00534172a^9 - 0.0168886a^8 + \cdots + 2.11396a - 1.09256 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -0.00961956a^9 - 0.00136882a^8 + \cdots - 0.117433a - 0.563990 \\ -0.0479940a^9 + 0.129583a^8 + \cdots - 6.59651a + 2.71887 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -0.0192391a^9 - 0.00273763a^8 + \cdots - 0.234865a - 2.12798 \\ -0.0993962a^9 + 0.261970a^8 + \cdots - 12.3475a + 5.55482 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -0.0192391a^9 - 0.00273763a^8 + \cdots - 0.234865a - 2.12798 \\ -0.0993962a^9 + 0.261970a^8 + \cdots - 12.3475a + 5.55482 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes =**unknown**

(iv) Complex Volumes and Cusp Shapes

Solution to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.339110 + 0.822375I$ $a = -1.56543 - 1.34638I$ $b = -0.27273 - 2.08377I$	$-6.25064 + 1.53058I$	$-5.48489 - 4.43065I$
$u = -0.339110 - 0.822375I$ $a = -1.56543 + 1.34638I$ $b = -0.27273 + 2.08377I$	$-6.25064 - 1.53058I$	$-5.48489 + 4.43065I$
$u = 0.455697 - 1.200152I$ $a = -1.04040 - 1.01526I$ $b = 0.259464 - 0.754300I$	$-0.70717 + 4.40083I$	$-1.25569 - 3.49859I$
$u = 0.455697 + 1.200152I$ $a = -1.04040 + 1.01526I$ $b = 0.259464 + 0.754300I$	$-0.70717 - 4.40083I$	$-1.25569 + 3.49859I$
$u = 0.766826$ $a = 0.595741 - 0.396465I$ $b = -0.608868 - 1.070700I$	-4.17865	-4.51886
$u = 0.766826$ $a = 0.595741 + 0.396465I$ $b = -0.608868 + 1.070700I$	-4.17865	-4.51886
$u = 0.455697 + 1.200152I$ $a = 1.53808 - 0.24695I$ $b = 1.15932 - 0.97347I$	$-0.70717 - 4.40083I$	$-1.25569 + 3.49859I$
$u = 0.455697 - 1.200152I$ $a = 1.53808 + 0.24695I$ $b = 1.15932 + 0.97347I$	$-0.70717 + 4.40083I$	$-1.25569 - 3.49859I$
$u = -0.339110 + 0.822375I$ $a = 2.47201 - 1.14141I$ $b = -0.03718 + 1.53386I$	$-6.25064 + 1.53058I$	$-5.48489 - 4.43065I$
$u = -0.339110 - 0.822375I$ $a = 2.47201 + 1.14141I$ $b = -0.03718 - 1.53386I$	$-6.25064 - 1.53058I$	$-5.48489 + 4.43065I$

II. $\boldsymbol{I_2^u = \langle u^8 - 2u^7 + \cdots - 5u + 2,\ -u^3 + u^2 + b - 2u + 1,\ u^7 + 2u^5 + 2u^4 - 3u^3 + 4u^2 + 2a - 4u + 1\rangle}$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -\frac{1}{2}u^7 - u^5 - u^4 + \frac{3}{2}u^3 - 2u^2 + 2u - \frac{1}{2} \\ u^3 - u^2 + 2u - 1 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} \frac{1}{2}u^7 - 2u^6 + \cdots + 2u + \frac{1}{2} \\ -u^6 + 2u^5 - 5u^4 + 6u^3 - 6u^2 + 4u - 1 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} \frac{1}{2}u^7 - u^6 + 2u^5 - 2u^4 + \frac{3}{2}u^3 - \frac{1}{2} \\ u^7 - 2u^6 + 5u^5 - 6u^4 + 7u^3 - 4u^2 + 3u - 1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} \frac{1}{2}u^7 - u^6 + \cdots + 3u - \frac{1}{2} \\ -u^7 + 2u^6 - 5u^5 + 6u^4 - 6u^3 + 4u^2 - 2u + 1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} \frac{1}{2}u^7 - u^6 + 2u^5 - 2u^4 + \frac{1}{2}u^3 + u^2 - 2u + \frac{3}{2} \\ -u^6 + 2u^5 - 5u^4 + 6u^3 - 6u^2 + 4u - 1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -\frac{1}{2}u^7 + u^6 - 2u^5 + 2u^4 - \frac{1}{2}u^3 + u + \frac{1}{2} \\ -u^7 + 2u^6 - 5u^5 + 6u^4 - 6u^3 + 4u^2 - 2u + 1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u^5 + 2u^4 - 5u^3 + 6u^2 - 5u + 2 \\ u^7 - 2u^6 + 5u^5 - 6u^4 + 6u^3 - 3u^2 + u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u^5 + 2u^4 - 5u^3 + 6u^2 - 5u + 2 \\ u^7 - 2u^6 + 5u^5 - 6u^4 + 6u^3 - 3u^2 + u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.255307 - 0.956150I$ $a = 1.69644 - 0.66169I$ $b = 0.02201 - 1.71336I$	$-5.22098 - 1.00599I$	$2.77337 + 0.09808I$
$u = -0.255307 + 0.956150I$ $a = 1.69644 + 0.66169I$ $b = 0.02201 + 1.71336I$	$-5.22098 + 1.00599I$	$2.77337 - 0.09808I$
$u = 0.16546 - 1.54832I$ $a = 0.318738 + 0.607785I$ $b = 0.515386 + 1.000367I$	$5.35605 + 1.96927I$	$-2.37928 - 1.80892I$
$u = 0.16546 + 1.54832I$ $a = 0.318738 - 0.607785I$ $b = 0.515386 - 1.000367I$	$5.35605 - 1.96927I$	$-2.37928 + 1.80892I$
$u = 0.420429 - 1.128350I$ $a = -1.43682 - 0.24968I$ $b = -0.594251 - 0.469676I$	$1.09366 + 5.02764I$	$3.89133 - 6.50935I$
$u = 0.420429 + 1.128350I$ $a = -1.43682 + 0.24968I$ $b = -0.594251 + 0.469676I$	$1.09366 - 5.02764I$	$3.89133 + 6.50935I$
$u = 0.669415 - 0.364330I$ $a = 0.671643 + 0.022513I$ $b = 0.056858 - 0.682310I$	$-1.22874 - 0.94773I$	$-2.78542 + 1.04891I$
$u = 0.669415 + 0.364330I$ $a = 0.671643 - 0.022513I$ $b = 0.056858 + 0.682310I$	$-1.22874 + 0.94773I$	$-2.78542 - 1.04891I$

III.

$$\boldsymbol{I_3^u = \langle u^{14}+5u^{13}+\cdots+6u+2,\ -u^9-2u^8+\cdots+b-1,\ u^{13}+u^{12}+\cdots+2a-10\rangle}$$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -\frac{1}{2}u^{13}-\frac{1}{2}u^{12}+\cdots+\frac{19}{2}u+5 \\ u^9+2u^8+6u^7+8u^6+11u^5+10u^4+5u^3+4u^2+1 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -\frac{1}{2}u^{13}-\frac{5}{2}u^{12}+\cdots-\frac{11}{2}u^2-\frac{3}{2}u \\ u^{11}+3u^{10}+\cdots+2u+1 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u \\ u^3+u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} \frac{1}{2}u^{13}+\frac{3}{2}u^{12}+\cdots-\frac{5}{2}u-2 \\ u^{13}+4u^{12}+\cdots+4u+1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} \frac{1}{2}u^{13}+\frac{5}{2}u^{12}+\cdots+\frac{13}{2}u+3 \\ -2u^{13}-9u^{12}+\cdots-7u-1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -\frac{1}{2}u^{13}-\frac{5}{2}u^{12}+\cdots-\frac{7}{2}u-1 \\ u^{11}+3u^{10}+\cdots+2u+1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -\frac{3}{2}u^{13}-\frac{13}{2}u^{12}+\cdots-\frac{1}{2}u+2 \\ -2u^{13}-9u^{12}+\cdots-7u-1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u^{13}+4u^{12}+\cdots-5u-3 \\ 2u^{13}+9u^{12}+\cdots+8u+2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u^{13}+4u^{12}+\cdots-5u-3 \\ 2u^{13}+9u^{12}+\cdots+8u+2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.148318 - 0.063656I$ $a = -0.028321 + 0.233596I$ $b = -0.30987 - 1.93573I$	$-14.6114 + 5.0048I$	$-3.11103 - 2.22395I$
$u = -1.148318 + 0.063656I$ $a = -0.028321 - 0.233596I$ $b = -0.30987 + 1.93573I$	$-14.6114 - 5.0048I$	$-3.11103 + 2.22395I$
$u = -0.60561 - 1.35177I$ $a = 1.56827 - 0.69249I$ $b = 0.37245 - 1.95519I$	$-10.6271 - 11.1808I$	$-0.33111 + 5.29605I$
$u = -0.60561 + 1.35177I$ $a = 1.56827 + 0.69249I$ $b = 0.37245 + 1.95519I$	$-10.6271 + 11.1808I$	$-0.33111 - 5.29605I$
$u = -0.56676 - 1.45000I$ $a = -0.817208 + 1.060384I$ $b = 0.27841 + 1.85481I$	$-9.89254 - 1.11324I$	$-1.192579 + 0.716159I$
$u = -0.56676 + 1.45000I$ $a = -0.817208 - 1.060384I$ $b = 0.27841 - 1.85481I$	$-9.89254 + 1.11324I$	$-1.192579 - 0.716159I$
$u = -0.287050 - 0.917286I$ $a = -1.72431 + 0.08692I$ $b = -0.508589 - 0.238855I$	$0.82198 - 3.62125I$	$2.13881 + 1.61924I$
$u = -0.287050 + 0.917286I$ $a = -1.72431 - 0.08692I$ $b = -0.508589 + 0.238855I$	$0.82198 + 3.62125I$	$2.13881 - 1.61924I$
$u = -0.151463 - 0.669236I$ $a = 1.172520 - 0.541864I$ $b = 0.378278 + 0.352097I$	$0.100921 + 1.074382I$	$3.38569 - 3.60575I$
$u = -0.151463 + 0.669236I$ $a = 1.172520 + 0.541864I$ $b = 0.378278 - 0.352097I$	$0.100921 - 1.074382I$	$3.38569 + 3.60575I$

Solution to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.12127 - 1.46215I$ $a = -0.495610 - 0.295894I$ $b = -0.487967 - 0.819263I$	$6.08599 + 2.02171I$	$9.26276 - 3.22644I$
$u = 0.12127 + 1.46215I$ $a = -0.495610 + 0.295894I$ $b = -0.487967 + 0.819263I$	$6.08599 - 2.02171I$	$9.26276 + 3.22644I$
$u = 0.137919 - 0.533558I$ $a = 0.824651 - 0.595460I$ $b = 0.277294 + 0.408223I$	$0.158278 + 1.072215I$	$2.34747 - 5.95960I$
$u = 0.137919 + 0.533558I$ $a = 0.824651 + 0.595460I$ $b = 0.277294 - 0.408223I$	$0.158278 - 1.072215I$	$2.34747 + 5.95960I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1	$(u^8+4u^6+\cdots+u+1)(u^{10}+u^9+\cdots+20u+23)$ $(u^{14}+11u^{12}+\cdots+u+1)$
c_2	$(u^8+8u^7+24u^6+37u^5+36u^4+21u^3+11u^2+5u+1)$ $(u^{10}+15u^9+\cdots+2268u+529)(u^{14}+22u^{13}+\cdots+u+1)$
c_3, c_7	$(u^8+4u^6+\cdots-u+1)(u^{10}+u^9+\cdots+20u+23)$ $(u^{14}+11u^{12}+\cdots+u+1)$
c_4	$(u^5-u^4+2u^3-u^2+u-1)^2$ $(u^8+2u^7+6u^6+8u^5+11u^4+10u^3+8u^2+5u+2)$ $(u^{14}+5u^{13}+\cdots+6u+2)$
c_5	$(u^8+u^6+\cdots+3u^2+1)(u^{10}+5u^9+\cdots+20u+7)$ $(u^{14}+8u^{12}+\cdots-4u+1)$
c_6	$(u-1)^{10}(u^8+3u^6+2u^5+u^4+3u^3+u^2+1)$ $(u^{14}+11u^{13}+\cdots+208u+32)$
c_8	$(u^8+u^6+\cdots+3u^2+1)(u^{10}+5u^9+\cdots+20u+7)$ $(u^{14}+8u^{12}+\cdots-4u+1)$
c_9	$(u^8+u^7+4u^6+u^4-2u^2+1)$ $(u^{10}+u^9+10u^8-8u^7+42u^6+2u^5+29u^4+43u^3+28u^2-12u+67)$ $(u^{14}+u^{13}+\cdots-42u+43)$
c_{10}	$(u-1)^{10}(u^8+3u^6-2u^5+u^4-3u^3+u^2+1)$ $(u^{14}+11u^{13}+\cdots+208u+32)$
c_{11}	$(u^5-u^4+2u^3-u^2+u-1)^2$ $(u^8-2u^7+6u^6-8u^5+11u^4-10u^3+8u^2-5u+2)$ $(u^{14}+5u^{13}+\cdots+6u+2)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_3, c_7	$(y^8+8y^7+24y^6+37y^5+36y^4+21y^3+11y^2+5y+1)$ $(y^{10}+15y^9+\cdots+2268y+529)(y^{14}+22y^{13}+\cdots+y+1)$
c_2	$(y^8-16y^7+56y^6+45y^5+192y^4+29y^3-17y^2-3y+1)$ $(y^{10}-33y^9+\cdots-245284y+279841)(y^{14}-66y^{13}+\cdots+57y+1)$
c_4, c_{11}	$(y^5+3y^4+4y^3+y^2-y-1)^2$ $(y^8+8y^7+26y^6+44y^5+41y^4+20y^3+8y^2+7y+4)$ $(y^{14}+11y^{13}+\cdots+48y+4)$
c_5, c_8	$(y^8+2y^7+3y^6-y^5-3y^4+4y^3+11y^2+6y+1)$ $(y^{10}+3y^9+\cdots+468y+49)(y^{14}+16y^{13}+\cdots+6y+1)$
c_6, c_{10}	$(y-1)^{10}(y^8+6y^7+11y^6+4y^5-3y^4-y^3+3y^2+2y+1)$ $(y^{14}+5y^{13}+\cdots+4352y+1024)$
c_9	$(y^8+7y^7+18y^6+4y^5-13y^4+4y^3+6y^2-4y+1)$ $(y^{10}+19y^9+\cdots+3608y+4489)$ $(y^{14}+29y^{13}+\cdots-6924y+1849)$