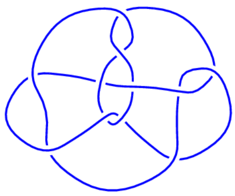
$11n_{143}$ $(K11n_{143})$



[1]

Arc Sequences

$\to \downarrow 6 \to \downarrow 1 \to \uparrow 9 \to \downarrow 11 \to \uparrow 10 \to \downarrow 2 \to \downarrow 11 \to \uparrow 6 \to \uparrow 4 \to \downarrow 8 \to \downarrow 4 \to$

Solving Sequence

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

Representation Ideals

$$I = \bigcap_{i=1}^{2} I_i^u$$

$$\begin{aligned}
I_1^u = \langle & u^9 - u^7 - 3u^5 + 3u^4 - 2u^3 + 3u^2 - u + 1,\ -u^8 + u^7 + u^6 - 2u^5 + 3u^4 - 5u^3 + 4u^2 + b - 3u + 2, \\
& u^8 - 2u^7 - u^6 + 3u^5 - 4u^4 + 8u^3 - 6u^2 + a + 3u - 3\rangle \\
I_2^u = \langle & u^{13} + u^{12} - 16u^{11} - 13u^{10} + 93u^9 + 90u^8 + 85u^7 + 4u^6 + 11u^5 + 20u^4 - 2u^2 + u + 1, \\
& 56481035465u^{12} + 41465111765u^{11} + \cdots + 163375109309a + 61503680909, \\
& -45562674603u^{12} - 33409271172u^{11} + \cdots + 163375109309b - 46748483168\rangle
\end{aligned}$$

There are 2 irreducible components with 22 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. $\boldsymbol{I_1^u =}$
$\boldsymbol{\langle u^9 - u^7 - 3u^5 + 3u^4 - 2u^3 + 3u^2 - u + 1,\ -u^8 + u^7 + \cdots + b + 2,\ u^8 - 2u^7 + \cdots + a - 3\rangle}$

(i) Arc colorings

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

(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
$u = -1.73938$ $a = 0.417985$ $b = -0.674258$	1.26533	-2.39584
$u = -0.371524 - 0.883251I$ $a = -2.35509 - 1.25158I$ $b = 0.592746 - 0.273562I$	$-5.46047 + 4.24647I$	$-14.3219 - 11.0959I$
$u = -0.371524 + 0.883251I$ $a = -2.35509 + 1.25158I$ $b = 0.592746 + 0.273562I$	$-5.46047 - 4.24647I$	$-14.3219 + 11.0959I$
$u = -0.187026 - 0.975482I$ $a = 0.418927 - 0.193980I$ $b = -0.41722 - 1.42706I$	$2.30462 - 3.49273I$	$-2.36810 + 1.84153I$
$u = -0.187026 + 0.975482I$ $a = 0.418927 + 0.193980I$ $b = -0.41722 + 1.42706I$	$2.30462 + 3.49273I$	$-2.36810 - 1.84153I$
$u = 0.245900 - 0.620274I$ $a = 2.17862 - 0.48657I$ $b = -1.162105 - 0.396903I$	$-2.24646 - 2.97681I$	$0.11269 + 3.28969I$
$u = 0.245900 + 0.620274I$ $a = 2.17862 + 0.48657I$ $b = -1.162105 + 0.396903I$	$-2.24646 + 2.97681I$	$0.11269 - 3.28969I$
$u = 1.182342 - 0.166435I$ $a = 0.548550 - 0.125671I$ $b = 0.323704 - 0.969086I$	$4.76964 - 2.24591I$	$6.27523 + 4.01918I$
$u = 1.182342 + 0.166435I$ $a = 0.548550 + 0.125671I$ $b = 0.323704 + 0.969086I$	$4.76964 + 2.24591I$	$6.27523 - 4.01918I$

II.

$$\boldsymbol{I_2^u = \langle u^{13}+u^{12}+\cdots+u+1,\ 5.65\times10^{10}u^{12}+4.15\times10^{10}u^{11}+\cdots+1.63\times10^{11}a+6.15\times10^{10},\ -4.56\times10^{10}u^{12}-3.34\times10^{10}u^{11}+\cdots+1.63\times10^{11}b-4.67\times10^{10}\rangle}$$

(i) Arc colorings

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

$$a_{11} = \begin{pmatrix}-0.345714u^{12}-0.253803u^{11}+\cdots-0.947242u-0.376457\\ 0.278884u^{12}+0.204494u^{11}+\cdots+1.79741u+0.286142\end{pmatrix}$$

$$a_5 = \begin{pmatrix}0.0893943u^{12}+0.0298782u^{11}+\cdots+0.0699394u+2.45178\\ -0.179709u^{12}-0.0533630u^{11}+\cdots-0.0998177u-1.39226\end{pmatrix}$$

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

$$a_6 = \begin{pmatrix}0.0893943u^{12}+0.0298782u^{11}+\cdots+0.0699394u+2.45178\\ -0.0893943u^{12}-0.0298782u^{11}+\cdots-0.0699394u-1.45178\end{pmatrix}$$

$$a_1 = \begin{pmatrix}-0.624598u^{12}-0.458297u^{11}+\cdots-2.74465u-0.662599\\ 0.278884u^{12}+0.204494u^{11}+\cdots+1.79741u+0.286142\end{pmatrix}$$

$$a_9 = \begin{pmatrix}-u\\u\end{pmatrix}$$

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

$$a_2 = \begin{pmatrix}-0.0596779u^{12}-0.0271723u^{11}+\cdots-0.157553u-1.85734\\ 0.0893943u^{12}+0.0298782u^{11}+\cdots+0.0699394u+1.45178\end{pmatrix}$$

$$a_7 = \begin{pmatrix}0.287036u^{12}+0.258105u^{11}+\cdots+2.39378u+0.287738\\ -0.278884u^{12}-0.204494u^{11}+\cdots-1.79741u-0.286142\end{pmatrix}$$

$$a_8 = \begin{pmatrix}0.0595160u^{12}+0.149831u^{11}+\cdots-3.36239u+0.0893943\\ -0.0595160u^{12}-0.149831u^{11}+\cdots+2.36239u-0.0893943\end{pmatrix}$$

$$a_8 = \begin{pmatrix}0.0595160u^{12}+0.149831u^{11}+\cdots-3.36239u+0.0893943\\ -0.0595160u^{12}-0.149831u^{11}+\cdots+2.36239u-0.0893943\end{pmatrix}$$

(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
$u = -3.09993 - 0.83578I$ $a = -0.218695 - 0.639370I$ $b = 1.13759 - 2.68898I$	$16.4142 + 9.3138I$	$-0.62797 - 3.85299I$
$u = -3.09993 + 0.83578I$ $a = -0.218695 + 0.639370I$ $b = 1.13759 + 2.68898I$	$16.4142 - 9.3138I$	$-0.62797 + 3.85299I$
$u = -0.581027$ $a = 0.507198$ $b = -0.772810$	-1.77301	-4.59264
$u = -0.444507 - 0.873153I$ $a = -1.92971 - 1.14643I$ $b = 0.118859 - 0.220988I$	$-5.13656 + 3.94627I$	$0.021726 + 1.151779I$
$u = -0.444507 + 0.873153I$ $a = -1.92971 + 1.14643I$ $b = 0.118859 + 0.220988I$	$-5.13656 - 3.94627I$	$0.021726 - 1.151779I$
$u = -0.364118 - 0.280685I$ $a = 0.145935 + 1.335433I$ $b = -0.562351 - 1.258616I$	$3.10631 - 4.18292I$	$3.50367 + 6.73830I$
$u = -0.364118 + 0.280685I$ $a = 0.145935 - 1.335433I$ $b = -0.562351 + 1.258616I$	$3.10631 + 4.18292I$	$3.50367 - 6.73830I$
$u = 0.278059 - 0.532845I$ $a = 0.716086 - 0.286838I$ $b = -0.041956 - 0.349018I$	$-0.112278 - 1.172772I$	$-1.56848 + 5.39486I$
$u = 0.278059 + 0.532845I$ $a = 0.716086 + 0.286838I$ $b = -0.041956 + 0.349018I$	$-0.112278 + 1.172772I$	$-1.56848 - 5.39486I$
$u = 0.395821 - 0.255747I$ $a = 0.305440 + 1.273712I$ $b = 0.161302 - 1.166070I$	$3.39477 - 1.45394I$	$0.239284 + 0.384387I$

Solution to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.395821 + 0.255747I$ $a = 0.305440 - 1.273712I$ $b = 0.161302 + 1.166070I$	$3.39477 + 1.45394I$	$0.239284 - 0.384387I$
$u = 3.02519 - 1.05130I$ $a = -0.272656 + 0.625168I$ $b = 1.07296 + 2.50140I$	$16.1187 - 1.6452I$	$-0.771905 + 0.029863I$
$u = 3.02519 + 1.05130I$ $a = -0.272656 - 0.625168I$ $b = 1.07296 - 2.50140I$	$16.1187 + 1.6452I$	$-0.771905 - 0.029863I$

III. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1	$(u^9+u^8-3u^7-5u^6+2u^5+8u^4+u^3-4u^2-u+1)$ $(u^{13}+11u^{12}+\cdots-48u-16)$
c_2	$(u^9+7u^8+23u^7+51u^6+84u^5+96u^4+71u^3+34u^2+9u+1)$ $(u^{13}+7u^{12}+\cdots-640u+256)$
c_3, c_8	$(u^9-u^7+\cdots-u+1)(u^{13}+u^{12}+\cdots+u+1)$
c_4	$(u^9+2u^8+\cdots-2u^2+1)(u^{13}+3u^{12}+\cdots-2u-1)$
c_5	$(u^9+u^8+\cdots+2u+1)(u^{13}-14u^{11}+\cdots+13u+6)$
c_6	$(u^9-u^8-3u^7+5u^6+2u^5-8u^4+u^3+4u^2-u-1)$ $(u^{13}+11u^{12}+\cdots-48u-16)$
c_7	$(u^9-4u^8+8u^7-8u^6+4u^5+u^4-3u^3+4u^2-3u+1)$ $(u^{13}+3u^{12}+\cdots+3u+1)$
c_9	$(u^9-u^7+\cdots-u-1)(u^{13}+u^{12}+\cdots+u+1)$
c_{10}	$(u^9+4u^8+8u^7+8u^6+4u^5-u^4-3u^3-4u^2-3u-1)$ $(u^{13}+3u^{12}+\cdots+3u+1)$
c_{11}	$(u^9-2u^8+\cdots+2u^2-1)(u^{13}+3u^{12}+\cdots-2u-1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_6	$(y^9 - 7y^8 + 23y^7 - 51y^6 + 84y^5 - 96y^4 + 71y^3 - 34y^2 + 9y - 1)$ $(y^{13} - 7y^{12} + \cdots - 640y - 256)$
c_2	$(y^9 - 3y^8 - 17y^7 + 61y^6 + 72y^5 - 356y^4 - 77y^3 - 70y^2 + 13y - 1)$ $(y^{13} + 69y^{12} + \cdots - 106496y - 65536)$
c_3, c_8, c_9	$(y^9 - 2y^8 - 5y^7 + 2y^6 + 11y^5 + 5y^4 - 8y^3 - 11y^2 - 5y - 1)$ $(y^{13} - 33y^{12} + \cdots + 5y - 1)$
c_4, c_{11}	$(y^9 + 2y^8 - y^7 - 5y^6 + 9y^5 + 9y^4 - y^3 - 6y^2 + 4y - 1)$ $(y^{13} + 27y^{12} + \cdots - 34y - 1)$
c_5	$(y^9 - y^8 + 4y^7 - 2y^6 + 2y^5 - 11y^4 - 6y^3 - 3y^2 - 2y - 1)$ $(y^{13} - 28y^{12} + \cdots - 83y - 36)$
c_7, c_{10}	$(y^9 + 8y^7 + \cdots + y - 1)(y^{13} + y^{12} + \cdots - y - 1)$