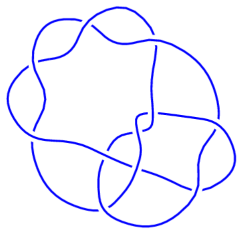
$11n_{181}$ ($K11n_{181}$)



[1]

Arc Sequences

$$\rightarrow\downarrow_{6}\rightarrow\downarrow_{8}\rightarrow\downarrow_{1}\rightarrow\downarrow_{10}\rightarrow\downarrow_{9}\rightarrow\downarrow_{1}\rightarrow\downarrow_{4}\rightarrow\downarrow_{2}\rightarrow\downarrow_{5}\rightarrow\downarrow_{4}\rightarrow\downarrow_{8}\rightarrow$$

Solving Sequence

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

Representation Ideals

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

$$\begin{aligned}
I_1^u &= \langle u^7 + 2u^5 + u^4 + u^3 + u^2 - u - 1,\ b + u,\ u^6 - u^5 + 3u^4 - u^3 + 2u^2 + a - 1\rangle \\
I_2^u &= \langle u^{13} + 5u^{11} - u^{10} + 15u^9 - 3u^8 + 23u^7 - 4u^6 + 22u^5 - 3u^4 + 10u^3 - 2u^2 + 2u - 1,\ b + u, \\
&\quad - 57u^{12} - 33u^{11} + \cdots + 64a + 47\rangle \\
I_3^u &= \langle u^{16} + u^{15} + \cdots + 22u + 31, \\
&\quad - 3020100992u^{15} + 17915450451u^{14} + \cdots + 3398682040096 + 273458732915, \\
&\quad - 756017073639u^{15} - 1082850030952u^{14} + \cdots + 10535914324279a - 12506104179146\rangle
\end{aligned}$$

There are 3 irreducible components with 36 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.

$$\boldsymbol{I_1^u = \langle u^7+2u^5+u^4+u^3+u^2-u-1,\ b+u,\ u^6-u^5+3u^4-u^3+2u^2+a-1\rangle}$$

(i) Arc colorings

$$a_2 = \begin{pmatrix}1\\0\end{pmatrix}$$

$$a_6 = \begin{pmatrix}0\\u\end{pmatrix}$$

$$a_1 = \begin{pmatrix}1\\-u^2\end{pmatrix}$$

$$a_7 = \begin{pmatrix}-u\\u^3+u\end{pmatrix}$$

$$a_9 = \begin{pmatrix}-u^6+u^5-3u^4+u^3-2u^2+1\\-u\end{pmatrix}$$

$$a_5 = \begin{pmatrix}-u^6-2u^4-u^3-u+2\\u^6+2u^4+u^2+u-1\end{pmatrix}$$

$$a_{10} = \begin{pmatrix}u^6-u^5+3u^4-u^3+2u^2-2\\-u^6-3u^4-2u^2+1\end{pmatrix}$$

$$a_4 = \begin{pmatrix}-u^6+u^5-2u^4+u^3-u^2+1\\u^4+2u^2\end{pmatrix}$$

$$a_8 = \begin{pmatrix}-u^6+u^5-3u^4+u^3-2u^2-u+1\\-u\end{pmatrix}$$

$$a_3 = \begin{pmatrix}-u^6+u^5-2u^4+u^3+2\\u^2\end{pmatrix}$$

$$a_{11} = \begin{pmatrix}u^6-u^5+3u^4-2u^3+2u^2-u-1\\-u^2-1\end{pmatrix}$$

$$a_{11} = \begin{pmatrix}u^6-u^5+3u^4-2u^3+2u^2-u-1\\-u^2-1\end{pmatrix}$$

(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
$u = -0.684504 - 0.212754I$ $a = -0.33756 - 1.93236I$ $b = 0.684504 + 0.212754I$	$0.58425 + 1.95701I$	$-10.82069 - 1.34837I$
$u = -0.684504 + 0.212754I$ $a = -0.33756 + 1.93236I$ $b = 0.684504 - 0.212754I$	$0.58425 - 1.95701I$	$-10.82069 + 1.34837I$
$u = -0.192319 - 1.190842I$ $a = -0.587751 + 0.132804I$ $b = 0.192319 + 1.190842I$	$4.79738 - 0.94912I$	$-1.21872 + 0.82233I$
$u = -0.192319 + 1.190842I$ $a = -0.587751 - 0.132804I$ $b = 0.192319 - 1.190842I$	$4.79738 + 0.94912I$	$-1.21872 - 0.82233I$
$u = 0.511889 - 1.253215I$ $a = 1.161310 - 0.409623I$ $b = -0.511889 + 1.253215I$	$13.16474 + 2.34118I$	$-0.965786 - 0.952471I$
$u = 0.511889 + 1.253215I$ $a = 1.161310 + 0.409623I$ $b = -0.511889 - 1.253215I$	$13.16474 - 2.34118I$	$-0.965786 + 0.952471I$
$u = 0.729869$ $a = -0.471993$ $b = -0.729869$	-4.19405	-9.98962

II. $\boldsymbol{I^u_2 = \langle u^{13} + 5u^{11} + \cdots + 2u - 1,\ b + u,\ -57u^{12} - 33u^{11} + \cdots + 64a + 47\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0.890625u^{12} + 0.515625u^{11} + \cdots + 1.10938u - 0.734375 \\ -u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -0.406250u^{12} + 0.343750u^{11} + \cdots + 4.40625u - 1.15625 \\ -0.140625u^{12} + 0.234375u^{11} + \cdots + 1.14063u - 0.515625 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -0.531250u^{12} - 0.781250u^{11} + \cdots + 1.53125u + 0.718750 \\ 0.0468750u^{12} - 0.0781250u^{11} + \cdots - 0.0468750u + 0.171875 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -\frac{3}{4}u^{12} - \frac{3}{4}u^{11} + \cdots + \frac{11}{4}u + \frac{1}{4} \\ -0.0156250u^{12} - 0.640625u^{11} + \cdots - 0.984375u + 0.609375 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0.890625u^{12} + 0.515625u^{11} + \cdots + 0.109375u - 0.734375 \\ -u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -0.515625u^{12} - 0.140625u^{11} + \cdots + 2.51563u + 0.109375 \\ u^2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -0.296875u^{12} - 1.17188u^{11} + \cdots - 1.70313u + 2.57813 \\ -0.234375u^{12} - 0.609375u^{11} + \cdots + 0.234375u + 0.140625 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -0.296875u^{12} - 1.17188u^{11} + \cdots - 1.70313u + 2.57813 \\ -0.234375u^{12} - 0.609375u^{11} + \cdots + 0.234375u + 0.140625 \end{pmatrix}$$

(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
$u = -0.76994 - 1.47811I$ $a = -0.931114 - 0.335072I$ $b = 0.76994 + 1.47811I$	$6.50636 - 11.34500I$	$-6.41522 + 5.59283I$
$u = -0.76994 + 1.47811I$ $a = -0.931114 + 0.335072I$ $b = 0.76994 - 1.47811I$	$6.50636 + 11.34500I$	$-6.41522 - 5.59283I$
$u = -0.454277 - 1.006096I$ $a = -0.093987 + 0.805953I$ $b = 0.454277 + 1.006096I$	$-3.02361 - 2.70878I$	$-9.87229 + 2.50117I$
$u = -0.454277 + 1.006096I$ $a = -0.093987 - 0.805953I$ $b = 0.454277 - 1.006096I$	$-3.02361 + 2.70878I$	$-9.87229 - 2.50117I$
$u = -0.345858 - 0.592455I$ $a = -1.35097 - 0.54415I$ $b = 0.345858 + 0.592455I$	$2.39689 - 1.47210I$	$-6.76905 + 4.68228I$
$u = -0.345858 + 0.592455I$ $a = -1.35097 + 0.54415I$ $b = 0.345858 - 0.592455I$	$2.39689 + 1.47210I$	$-6.76905 - 4.68228I$
$u = 0.150630 - 0.774375I$ $a = -1.54813 + 0.76688I$ $b = -0.150630 + 0.774375I$	$1.92199 - 1.66881I$	$-4.76442 + 0.86409I$
$u = 0.150630 + 0.774375I$ $a = -1.54813 - 0.76688I$ $b = -0.150630 - 0.774375I$	$1.92199 + 1.66881I$	$-4.76442 - 0.86409I$
$u = 0.356605$ $a = 0.881921$ $b = -0.356605$	-0.542082	-18.2828
$u = 0.589560 - 1.048774I$ $a = 1.26834 - 0.65193I$ $b = -0.589560 + 1.048774I$	$12.09747 + 2.52656I$	$-9.24277 - 2.75851I$

Solution to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.589560 + 1.048774I$ $a = 1.26834 + 0.65193I$ $b = -0.589560 - 1.048774I$	$12.09747 - 2.52656I$	$-9.24277 + 2.75851I$
$u = 0.651583 - 1.236761I$ $a = 0.714908 + 0.187738I$ $b = -0.651583 + 1.236761I$	$-1.53379 + 7.84030I$	$-8.79484 - 6.42108I$
$u = 0.651583 + 1.236761I$ $a = 0.714908 - 0.187738I$ $b = -0.651583 - 1.236761I$	$-1.53379 - 7.84030I$	$-8.79484 + 6.42108I$

III. $\boldsymbol{I^u_3 =}$
$\boldsymbol{\langle u^{16}+u^{15}+\cdots+22u+31,\ -3.02\times 10^{9}u^{15}+1.79\times 10^{10}u^{14}+\cdots+3.40\times 10^{11}b+2.73\times 10^{11},\ -7.56\times 10^{11}u^{15}-1.08\times 10^{12}u^{14}+\cdots+1.05\times 10^{13}a-1.25\times 10^{13}\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u \\ u^3+u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0.0717562u^{15} + 0.102777u^{14} + \cdots + 2.64959u + 1.18700 \\ 0.00888609u^{15} - 0.0527129u^{14} + \cdots - 0.917073u - 0.804602 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -0.0456383u^{15} + 0.00210365u^{14} + \cdots + 1.00937u + 1.43837 \\ 0.0466726u^{15} - 0.00819680u^{14} + \cdots + 0.200327u - 2.32362 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -0.0311097u^{15} - 0.0880219u^{14} + \cdots - 2.05895u - 0.233069 \\ 0.0214961u^{15} + 0.0759945u^{14} + \cdots + 1.14894u + 1.31477 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0.0372499u^{15} + 0.0153993u^{14} + \cdots + 0.787082u - 1.68262 \\ -0.00152993u^{15} - 0.0806813u^{14} + \cdots - 0.717701u - 2.17728 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0.0806423u^{15} + 0.0500641u^{14} + \cdots + 1.73252u + 0.382395 \\ 0.00888609u^{15} - 0.0527129u^{14} + \cdots - 0.917073u - 0.804602 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 0.00667175u^{15} - 0.107263u^{14} + \cdots - 0.604653u - 3.18254 \\ -0.0682838u^{15} - 0.228891u^{14} + \cdots - 3.69147u - 5.03188 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -0.0372499u^{15} - 0.0153993u^{14} + \cdots - 0.787082u + 1.68262 \\ 0.0305782u^{15} + 0.122662u^{14} + \cdots + 1.39174u + 1.49991 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -0.0372499u^{15} - 0.0153993u^{14} + \cdots - 0.787082u + 1.68262 \\ 0.0305782u^{15} + 0.122662u^{14} + \cdots + 1.39174u + 1.49991 \end{pmatrix}$$

(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
$u=-1.55524-0.42761I$ $a=-0.192476-0.945314I$ $b=-0.176984+1.046895I$	$2.84290+3.16396I$	$-6.17326-2.56480I$
$u=-1.55524+0.42761I$ $a=-0.192476+0.945314I$ $b=-0.176984-1.046895I$	$2.84290-3.16396I$	$-6.17326+2.56480I$
$u=-0.589780-0.682901I$ $a=0.711330+0.035736I$ $b=-1.159017+0.482637I$	$-4.15885-1.41510I$	$-9.82674+4.90874I$
$u=-0.589780+0.682901I$ $a=0.711330-0.035736I$ $b=-1.159017-0.482637I$	$-4.15885+1.41510I$	$-9.82674-4.90874I$
$u=-0.309677-0.918028I$ $a=0.626050-0.219220I$ $b=-0.092247-1.363224I$	$3.73684-1.41510I$	$-9.82674+4.90874I$
$u=-0.309677+0.918028I$ $a=0.626050+0.219220I$ $b=-0.092247+1.363224I$	$3.73684+1.41510I$	$-9.82674-4.90874I$
$u=-0.26048-1.62229I$ $a=0.943043+0.086771I$ $b=-0.786926-1.059081I$	$10.73858-3.16396I$	$-6.17326+2.56480I$
$u=-0.26048+1.62229I$ $a=0.943043-0.086771I$ $b=-0.786926+1.059081I$	$10.73858+3.16396I$	$-6.17326-2.56480I$
$u=0.092247-1.363224I$ $a=-0.389627-0.263479I$ $b=0.309677-0.918028I$	$3.73684+1.41510I$	$-9.82674-4.90874I$
$u=0.092247+1.363224I$ $a=-0.389627+0.263479I$ $b=0.309677+0.918028I$	$3.73684-1.41510I$	$-9.82674+4.90874I$

Solution to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.176984 - 1.046895I$ $a = -1.45821 + 0.14634I$ $b = 1.55524 + 0.42761I$	$2.84290 + 3.16396I$	$-6.17326 - 2.56480I$
$u = 0.176984 + 1.046895I$ $a = -1.45821 - 0.14634I$ $b = 1.55524 - 0.42761I$	$2.84290 - 3.16396I$	$-6.17326 + 2.56480I$
$u = 0.786926 - 1.059081I$ $a = -0.991866 + 0.637958I$ $b = 0.26048 - 1.62229I$	$10.73858 + 3.16396I$	$-6.17326 - 2.56480I$
$u = 0.786926 + 1.059081I$ $a = -0.991866 - 0.637958I$ $b = 0.26048 + 1.62229I$	$10.73858 - 3.16396I$	$-6.17326 + 2.56480I$
$u = 1.159017 - 0.482637I$ $a = -0.135341 - 0.493664I$ $b = 0.589780 + 0.682901I$	$-4.15885 - 1.41510I$	$-9.82674 + 4.90874I$
$u = 1.159017 + 0.482637I$ $a = -0.135341 + 0.493664I$ $b = 0.589780 - 0.682901I$	$-4.15885 + 1.41510I$	$-9.82674 - 4.90874I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1, c_8	$(u^7 + 2u^5 + \cdots - u - 1)(u^{13} + 5u^{11} + \cdots + 2u - 1)$ $(u^{16} + u^{15} + \cdots + 22u + 31)$
c_2, c_6	$(u^7 + 2u^5 + \cdots - u + 1)(u^{13} + 5u^{11} + \cdots + 2u - 1)$ $(u^{16} + u^{15} + \cdots + 22u + 31)$
c_3	$(u^2 - u - 1)^8(u^7 + 3u^6 + 3u^5 + 4u^4 + 6u^3 + u^2 - u + 2)$ $(u^{13} + 12u^{12} + \cdots - 16u - 16)$
c_4, c_5	$(u^4 - u^3 + 3u^2 - 2u + 1)^4(u^7 + 5u^5 + 7u^3 + 2u - 1)$ $(u^{13} + 5u^{12} + \cdots + 30u + 4)$
c_7, c_{11}	$(u^7 - u^6 + \cdots + 2u^2 + 1)(u^{13} + u^{12} + \cdots + 3u + 1)$ $(u^{16} + u^{15} + \cdots - 48u + 19)$
c_9, c_{10}	$(u^4 - u^3 + 3u^2 - 2u + 1)^4(u^7 + 5u^5 + 7u^3 + 2u + 1)$ $(u^{13} + 5u^{12} + \cdots + 30u + 4)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_2, c_6 c_8	$(y^7+4y^6+\cdots+3y-1)(y^{13}+10y^{12}+\cdots+30y^2-1)$ $(y^{16}+7y^{15}+\cdots+4104y+961)$
c_3	$(y^2-3y+1)^8(y^7-3y^6-3y^5+12y^4+10y^3-29y^2-3y-4)$ $(y^{13}-6y^{12}+\cdots+4480y-256)$
c_4, c_5, c_9 c_{10}	$(y^4+5y^3+7y^2+2y+1)^4$ $(y^7+10y^6+39y^5+74y^4+69y^3+28y^2+4y-1)$ $(y^{13}+15y^{12}+\cdots+124y-16)$
c_7, c_{11}	$(y^7-3y^6+\cdots-4y-1)(y^{13}-17y^{12}+\cdots+25y-1)$ $(y^{16}-9y^{15}+\cdots-4356y+361)$