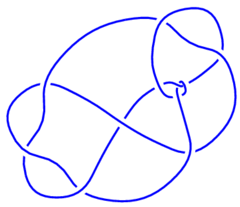
$11n_{18}$ $(K11n_{18})$



[1]

Arc Sequences

$$\rightarrow \uparrow_{5} \rightarrow \downarrow_{1} \rightarrow \uparrow_{9} \rightarrow \uparrow_{2} \rightarrow \downarrow_{3} \rightarrow \downarrow_{10} \rightarrow \downarrow_{11} \rightarrow \uparrow_{3} \rightarrow \downarrow_{1} \rightarrow \downarrow_{8} \rightarrow \downarrow_{7} \rightarrow$$

Solving Sequence

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

Representation Ideals

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

$$\begin{aligned} I_1^u &= \langle a^6 + 3a^5 + 9a^4 + 8a^3 + 30a^2 + 9a + 7,\ -3a^5 - 8a^4 - 17a^3 + 99b - 2a + 58, \\ &\quad - 8a^5 - 25a^4 - 71a^3 - 44a^2 - 196a + 99u + 19\rangle \\ I_2^u &= \langle u^{22} + 4u^{21} + \cdots + 3u + 1,\ -u^{21} - 4u^{20} + \cdots + 4b - 1,\ 2u^{21} + 7u^{20} + \cdots + 4a + 5\rangle \end{aligned}$$

There are 2 irreducible components with 28 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. $\boldsymbol{I_1^u = \langle a^6 + 3a^5 + 9a^4 + 8a^3 + 30a^2 + 9a + 7,\ -3a^5 - 8a^4 - 17a^3 + 99b - 2a + 58,\ -8a^5 + 99u + \cdots - 196a + 19\rangle}$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0 \\ 0.0808081a^5 + 0.252525a^4 + \cdots + 1.97980a - 0.191919 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ 0.0808081a^5 + 0.252525a^4 + \cdots + 1.97980a + 0.808081 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -0.0808081a^5 - 0.252525a^4 + \cdots - 1.97980a + 0.191919 \\ 0.0808081a^5 + 0.252525a^4 + \cdots + 1.97980a + 0.808081 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} a \\ 0.0303030a^5 + 0.0808081a^4 + \cdots + 0.0202020a - 0.585859 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0.0101010a^5 + 0.101010a^4 + \cdots + 0.858586a + 1.21212 \\ 0.0202020a^5 - 0.0202020a^4 + \cdots - 0.171717a - 0.464646 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0.0505051a^5 + 0.171717a^4 + \cdots + 1.62626a + 0.727273 \\ -0.0101010a^5 - 0.101010a^4 + \cdots - 0.191919a - 0.878788 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0.0505051a^5 + 0.171717a^4 + \cdots + 1.62626a + 0.727273 \\ -0.0101010a^5 - 0.101010a^4 + \cdots - 0.191919a - 0.878788 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -0.0808081a^5 - 0.252525a^4 + \cdots - 1.97980a + 0.191919 \\ 0.0808081a^5 + 0.252525a^4 + \cdots + 1.97980a + 0.808081 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0.0606061a^5 + 0.272727a^4 + \cdots + 1.81818a + 1.60606 \\ -0.0101010a^5 - 0.101010a^4 + \cdots - 0.191919a - 0.878788 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

(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
$u = -0.500000 - 0.866025I$ $a = -1.80940 - 2.14698I$ $b = -0.215080 + 1.307141I$	$3.02413 + 4.85801I$	$-2.09851 - 6.80481I$
$u = -0.500000 + 0.866025I$ $a = -1.80940 + 2.14698I$ $b = -0.215080 - 1.307141I$	$3.02413 - 4.85801I$	$-2.09851 + 6.80481I$
$u = -0.500000 - 0.866025I$ $a = -0.145240 - 0.493496I$ $b = -0.569840$	$-1.11345 + 2.02988I$	$-5.85715 - 2.43783I$
$u = -0.500000 + 0.866025I$ $a = -0.145240 + 0.493496I$ $b = -0.569840$	$-1.11345 - 2.02988I$	$-5.85715 + 2.43783I$
$u = -0.500000 + 0.866025I$ $a = 0.45464 - 1.77445I$ $b = -0.215080 + 1.307141I$	$3.02413 + 0.79824I$	$1.45566 + 0.28364I$
$u = -0.500000 - 0.866025I$ $a = 0.45464 + 1.77445I$ $b = -0.215080 - 1.307141I$	$3.02413 - 0.79824I$	$1.45566 - 0.28364I$

II.

$$\boldsymbol{I^u_2 = \langle u^{22}+4u^{21}+\cdots+3u+1,\ -u^{21}-4u^{20}+\cdots+4b-1,\ 2u^{21}+7u^{20}+\cdots+4a+5\rangle}$$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u^2+1 \\ -u^2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -\frac{1}{2}u^{21} - \frac{7}{4}u^{20} + \cdots + u - \frac{5}{4} \\ \frac{1}{4}u^{21} + u^{20} + \cdots + \frac{3}{4}u + \frac{1}{4} \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u^{21} - \frac{3}{2}u^{20} + \cdots + 2u + 3 \\ \frac{5}{4}u^{21} + \frac{15}{4}u^{20} + \cdots + 3u^2 + \frac{7}{4}u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} \frac{11}{4}u^{21} + 10u^{20} + \cdots + \frac{59}{4}u + \frac{21}{4} \\ \frac{1}{4}u^{20} + \frac{1}{4}u^{19} + \cdots - u - \frac{7}{4} \end{pmatrix}$$
$$a_9 = \begin{pmatrix} \frac{9}{4}u^{21} + 10u^{20} + \cdots + \frac{57}{4}u + \frac{19}{4} \\ u^{21} + \frac{7}{4}u^{20} + \cdots - 2u - \frac{9}{4} \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u \\ -u^3 - u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} \frac{5}{4}u^{21} + \frac{33}{4}u^{20} + \cdots + \frac{65}{4}u + 7 \\ u^{21} + \frac{7}{4}u^{20} + \cdots - 2u - \frac{9}{4} \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -u^5 - 2u^3 - u \\ u^5 + u^3 + u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -u^5 - 2u^3 - u \\ u^5 + u^3 + u \end{pmatrix}$$

(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
$u=-1.057632-0.891097I$ $a=-0.33696-3.13675I$ $b=\ \ 0.25416+1.56446I$	$17.2299-2.8896I$	$2.69042+0.63603I$
$u=-1.057632+0.891097I$ $a=-0.33696+3.13675I$ $b=\ \ 0.25416-1.56446I$	$17.2299+2.8896I$	$2.69042-0.63603I$
$u=-0.974541-0.933100I$ $a=-0.882486-0.770402I$ $b=\ \ 0.770283+0.589538I$	$10.13955+0.88452I$	$-0.211027+0.306129I$
$u=-0.974541+0.933100I$ $a=-0.882486+0.770402I$ $b=\ \ 0.770283-0.589538I$	$10.13955-0.88452I$	$-0.211027-0.306129I$
$u=-0.934621-1.002490I$ $a=-0.30507+1.44219I$ $b=\ \ 0.804807-0.517036I$	$9.90919+6.12637I$	$-0.73850-4.70880I$
$u=-0.934621+1.002490I$ $a=-0.30507-1.44219I$ $b=\ \ 0.804807+0.517036I$	$9.90919-6.12637I$	$-0.73850+4.70880I$
$u=-0.93192-1.07558I$ $a=\ \ 1.19329+3.10796I$ $b=\ \ 0.28918-1.53736I$	$16.5973+10.1473I$	$1.94212-4.94349I$
$u=-0.93192+1.07558I$ $a=\ \ 1.19329-3.10796I$ $b=\ \ 0.28918+1.53736I$	$16.5973-10.1473I$	$1.94212+4.94349I$
$u=-0.441206-0.434605I$ $a=-2.02208-3.40911I$ $b=-0.248700+1.353778I$	$3.35457+3.66509I$	$0.212427-1.175787I$
$u=-0.441206+0.434605I$ $a=-2.02208+3.40911I$ $b=-0.248700-1.353778I$	$3.35457-3.66509I$	$0.212427+1.175787I$

Solution to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.166359 - 0.448248I$ $a = -0.14503 - 1.53917I$ $b = -0.597356 + 0.125917I$	$-1.35470 + 0.57102I$	$-7.20802 - 0.39012I$
$u = -0.166359 + 0.448248I$ $a = -0.14503 + 1.53917I$ $b = -0.597356 - 0.125917I$	$-1.35470 - 0.57102I$	$-7.20802 + 0.39012I$
$u = 0.021210 - 0.797027I$ $a = 0.945470 + 0.543778I$ $b = -0.115563 - 1.244545I$	$1.83932 - 1.95875I$	$-3.73580 + 3.68347I$
$u = 0.021210 + 0.797027I$ $a = 0.945470 - 0.543778I$ $b = -0.115563 + 1.244545I$	$1.83932 + 1.95875I$	$-3.73580 - 3.68347I$
$u = 0.448518 - 0.960694I$ $a = 0.700726 - 0.555496I$ $b = 0.321731 + 0.235214I$	$-0.35018 - 2.57282I$	$0.96973 + 5.85943I$
$u = 0.448518 + 0.960694I$ $a = 0.700726 + 0.555496I$ $b = 0.321731 - 0.235214I$	$-0.35018 + 2.57282I$	$0.96973 - 5.85943I$
$u = 0.547856 - 0.597543I$ $a = 0.345683 + 0.950204I$ $b = -0.037659 - 0.478054I$	$0.83479 - 1.39529I$	$1.49278 + 4.06161I$
$u = 0.547856 + 0.597543I$ $a = 0.345683 - 0.950204I$ $b = -0.037659 + 0.478054I$	$0.83479 + 1.39529I$	$1.49278 - 4.06161I$
$u = 0.566826 - 1.129592I$ $a = 1.59508 - 2.39362I$ $b = 0.08081 + 1.44732I$	$5.22365 - 3.91165I$	$1.62467 + 2.79581I$
$u = 0.566826 + 1.129592I$ $a = 1.59508 + 2.39362I$ $b = 0.08081 - 1.44732I$	$5.22365 + 3.91165I$	$1.62467 - 2.79581I$

Solution to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.921870 - 0.545826I$ $a = -0.08863 + 3.62988I$ $b = -0.02169 - 1.49375I$	$7.30874 - 1.68962I$	$3.46122 + 1.99684I$
$u = 0.921870 + 0.545826I$ $a = -0.08863 - 3.62988I$ $b = -0.02169 + 1.49375I$	$7.30874 + 1.68962I$	$3.46122 - 1.99684I$

III. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1	$(u^2+u+1)^3(u^{22}+4u^{21}+\cdots+3u+1)$
c_2	$(u^2+u+1)^3(u^{22}+4u^{21}+\cdots+11u+1)$
c_3, c_8	$u^6(u^{22}+u^{21}+\cdots+32u+64)$
c_4	$(u^2-u+1)^3(u^{22}+4u^{21}+\cdots+3u+1)$
c_5	$(u^2+u+1)^3(u^{22}+4u^{21}+\cdots-1113u+306)$
c_6	$(u^3-u^2+1)^2(u^{22}+3u^{21}+\cdots-105u+34)$
c_7, c_{10}, c_{11}	$(u^3-u^2+2u-1)^2(u^{22}+3u^{21}+\cdots+4u+1)$
c_9	$(u^3+u^2-1)^2(u^{22}+u^{21}+\cdots+2u^2+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_4	$(y^2+y+1)^3(y^{22}+4y^{21}+\cdots+11y+1)$
c_2	$(y^2+y+1)^3(y^{22}+32y^{21}+\cdots+11y+1)$
c_3, c_8	$y^6(y^{22}-35y^{21}+\cdots-17408y+4096)$
c_5	$(y^2+y+1)^3(y^{22}+60y^{21}+\cdots+3785751y+93636)$
c_6	$(y^3-y^2+2y-1)^2(y^{22}+19y^{21}+\cdots+18011y+1156)$
c_7, c_{10}, c_{11}	$(y^3+3y^2+2y-1)^2(y^{22}+23y^{21}+\cdots+4y+1)$
c_9	$(y^3-y^2+2y-1)^2(y^{22}+39y^{21}+\cdots+4y+1)$