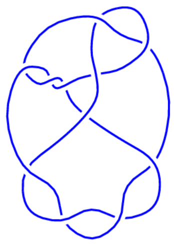
$11n_{139}$ ($K11n_{139}$)



[1]

Arc Sequences

↑	↓	↓	↓	↓	↑	↓	↓	↑	↓	↓
7	1	8	11	10	2	4	3	1	5	4

Solving Sequence

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

Representation Ideals

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

$$I_1^u = \langle u^4 + 3u^2 + 1,\ u^2 + a + 2,\ -u^3 + b - 2u\rangle$$
$$I_2^u = \langle u^8 + u^7 + 8u^6 + 4u^5 + 18u^4 + 11u^2 - 5u + 2,\ -u^7 - 8u^5 - 18u^3 + 2u^2 + 4b - 9u + 2,$$
$$- u^7 - 6u^5 + 2u^4 - 8u^3 + 8u^2 + 4a + u + 4\rangle$$

There are 2 irreducible components with 12 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. $I_1^u = \langle u^4 + 3u^2 + 1,\ u^2 + a + 2,\ -u^3 + b - 2u \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad - 0.618034I$ $a = -1.61803$ $b = \quad - 1.00000I$	0.986960	0
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$u = \quad 1.61803I$ $a = \quad 0.618034$ $b = \quad - 1.00000I$	8.88264	0

II. $\boldsymbol{I_2^u = \langle u^8 + u^7 + 8u^6 + 4u^5 + 18u^4 + 11u^2 - 5u + 2,\ -u^7 - 8u^5 - 18u^3 + 2u^2 + 4b - 9u + 2,\ -u^7 - 6u^5 + 2u^4 - 8u^3 + 8u^2 + 4a + u + 4\rangle}$

(i) Arc colorings

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

(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
$u = -0.36613 - 1.66771I$ $a = -1.005552 - 0.492957I$ $b = -1.52012 + 0.43970I$	$12.93019 - 1.89326I$	$1.23462 + 1.04722I$
$u = -0.36613 + 1.66771I$ $a = -1.005552 + 0.492957I$ $b = -1.52012 - 0.43970I$	$12.93019 + 1.89326I$	$1.23462 - 1.04722I$
$u = -0.234808 - 1.029494I$ $a = 0.740043 + 0.762517I$ $b = 0.776759 + 0.445071I$	$3.66920 + 1.06491I$	$1.31198 - 1.63429I$
$u = -0.234808 + 1.029494I$ $a = 0.740043 - 0.762517I$ $b = 0.776759 - 0.445071I$	$3.66920 - 1.06491I$	$1.31198 + 1.63429I$
$u = -0.15755 - 1.96154I$ $a = 1.131185 - 0.148871I$ $b = 1.39990 - 1.57125I$	$-12.82706 - 5.56972I$	$0.47783 + 1.89693I$
$u = -0.15755 + 1.96154I$ $a = 1.131185 + 0.148871I$ $b = 1.39990 + 1.57125I$	$-12.82706 + 5.56972I$	$0.47783 - 1.89693I$
$u = 0.258486 - 0.303432I$ $a = -1.115676 + 0.333931I$ $b = -0.156540 - 0.733537I$	$-0.482455 + 0.984921I$	$-7.02443 - 7.03211I$
$u = 0.258486 + 0.303432I$ $a = -1.115676 - 0.333931I$ $b = -0.156540 + 0.733537I$	$-0.482455 - 0.984921I$	$-7.02443 + 7.03211I$

III. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1, c_6	$(u^2+1)^2(u^8+u^7-u^6-8u^5+2u^4+7u^3+5u^2+4u+5)$
c_2	$(u+1)^4(u^8+3u^7+\cdots-34u+25)$
c_3, c_7, c_8	$(u^2+1)^2(u^8+u^7+9u^6+2u^5+22u^4-5u^3+23u^2+6u+5)$
c_4, c_5, c_{10} c_{11}	$(u^4+3u^2+1)(u^8+u^7+8u^6+4u^5+18u^4+11u^2-5u+2)$
c_9	$(u^2-u-1)^2$ $(u^8+11u^7+44u^6+62u^5+426u^4-1920u^3+1693u^2-389u+136)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_6	$(y+1)^4(y^8 - 3y^7 + \cdots + 34y + 25)$
c_2	$(y-1)^4(y^8 + 33y^7 + \cdots - 1706y + 625)$
c_3, c_7, c_8	$(y+1)^4$ $(y^8 + 17y^7 + 121y^6 + 448y^5 + 916y^4 + 1053y^3 + 809y^2 + 194y + 25)$
c_4, c_5, c_{10} c_{11}	$(y^2 + 3y + 1)^2$ $(y^8 + 15y^7 + 92y^6 + 294y^5 + 514y^4 + 468y^3 + 193y^2 + 19y + 4)$
c_9	$(y^2 - 3y + 1)^2(y^8 - 33y^7 + \cdots + 309175y + 18496)$