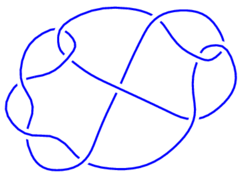
10_{38} $(K10a_{29})$



[1]

Arc Sequences

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

$\downarrow$	$\downarrow$	$\downarrow$	$\uparrow$	$\downarrow$	$\downarrow$	$\downarrow$	$\downarrow$	$\uparrow$	$\downarrow$
8	6	5	9	3	10	1	7	4	2

Solving Sequence

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

Representation Ideals

$$I = I_1^u$$

$$I_1^u = \langle u^{29} - u^{28} + \cdots + 3u - 1 \rangle$$

There are 1 irreducible components with 29 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. $I_1^u = \langle u^{29} - u^{28} + \cdots + 3u - 1\rangle$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -u^2 + 1 \\ u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u^4 - u^2 + 1 \\ -u^4 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u^9 - 2u^7 + 3u^5 - 2u^3 + u \\ -u^9 + u^7 - u^5 + u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u^{16} + 3u^{14} - 7u^{12} + 10u^{10} - 11u^8 + 8u^6 - 4u^4 + 1 \\ u^{16} - 2u^{14} + 4u^{12} - 4u^{10} + 2u^8 - 2u^4 + 2u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u^{23} - 4u^{21} + \cdots - 4u^3 + 2u \\ -u^{23} + 3u^{21} + \cdots + 2u^3 + u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u^{27} - 4u^{25} + \cdots - 7u^3 + 2u \\ u^{28} - u^{27} + \cdots - 2u + 1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^{28} + 20u^{26} - 4u^{25} - 68u^{24} + 16u^{23} + 164u^{22} - 56u^{21} - 308u^{20} + 128u^{19} + 464u^{18} - 240u^{17} - 564u^{16} + 356u^{15} + 540u^{14} - 424u^{13} - 392u^{12} + 404u^{11} + 172u^{10} - 292u^9 + 8u^8 + 132u^7 - 80u^6 - 16u^5 + 68u^4 - 36u^3 - 20u^2 + 28u - 14$

(iv) Complex Volumes and Cusp Shapes

Solution to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.026367 - 0.233938I$	$2.56729 - 6.08103I$	$-6.75508 + 6.19570I$
$u = -1.026367 + 0.233938I$	$2.56729 + 6.08103I$	$-6.75508 - 6.19570I$
$u = -0.992356 - 0.761925I$	$9.22437 - 4.97924I$	$-1.18288 + 2.83205I$
$u = -0.992356 + 0.761925I$	$9.22437 + 4.97924I$	$-1.18288 - 2.83205I$
$u = -0.977674 - 0.081172I$	$-3.81512 - 2.50065I$	$-13.4942 + 5.2130I$
$u = -0.977674 + 0.081172I$	$-3.81512 + 2.50065I$	$-13.4942 - 5.2130I$
$u = -0.920683 - 0.717468I$	$2.89789 - 3.74340I$	$-0.78236 + 3.16701I$
$u = -0.920683 + 0.717468I$	$2.89789 + 3.74340I$	$-0.78236 - 3.16701I$
$u = -0.811061 - 0.735142I$	$3.23356 - 1.79478I$	$-0.02040 + 2.96423I$
$u = -0.811061 + 0.735142I$	$3.23356 + 1.79478I$	$-0.02040 - 2.96423I$
$u = -0.753827 - 0.841147I$	$9.96021 - 1.00685I$	$0.05949 + 2.19242I$
$u = -0.753827 + 0.841147I$	$9.96021 + 1.00685I$	$0.05949 - 2.19242I$
$u = 0.023100 - 0.676599I$	$5.95691 + 3.09358I$	$-0.04639 - 2.70964I$
$u = 0.023100 + 0.676599I$	$5.95691 - 3.09358I$	$-0.04639 + 2.70964I$
$u = 0.218842 - 0.390599I$	$-0.332830 + 1.166296I$	$-4.21359 - 5.75923I$
$u = 0.218842 + 0.390599I$	$-0.332830 - 1.166296I$	$-4.21359 + 5.75923I$
$u = 0.720110 - 0.729907I$	$1.63523 - 2.09123I$	$-4.28547 + 3.54352I$
$u = 0.720110 + 0.729907I$	$1.63523 + 2.09123I$	$-4.28547 - 3.54352I$
$u = 0.736471 - 0.843921I$	$9.64156 - 5.37662I$	$-0.52039 + 2.73445I$
$u = 0.736471 + 0.843921I$	$9.64156 + 5.37662I$	$-0.52039 - 2.73445I$
$u = 0.834085$	-1.36635	-6.67119
$u = 0.891442 - 0.617290I$	$-0.99960 + 2.39368I$	$-10.11411 - 2.65936I$
$u = 0.891442 + 0.617290I$	$-0.99960 - 2.39368I$	$-10.11411 + 2.65936I$
$u = 0.971124 - 0.697980I$	$0.88657 + 7.55674I$	$-6.27529 - 8.69605I$
$u = 0.971124 + 0.697980I$	$0.88657 - 7.55674I$	$-6.27529 + 8.69605I$
$u = 1.000892 - 0.266873I$	$2.82194 + 0.04233I$	$-6.03677 - 1.08568I$
$u = 1.000892 + 0.266873I$	$2.82194 - 0.04233I$	$-6.03677 + 1.08568I$
$u = 1.002945 - 0.755712I$	$8.8206 + 11.3493I$	$-1.99701 - 7.67243I$
$u = 1.002945 + 0.755712I$	$8.8206 - 11.3493I$	$-1.99701 + 7.67243I$

II. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1, c_7	$(u^{29} + u^{28} + \cdots + 3u + 1)$
c_2, c_3, c_5	$(u^{29} + 7u^{28} + \cdots - u - 1)$
c_4, c_9	$(u^{29} + u^{28} + \cdots + u - 1)$
c_6	$(u^{29} + u^{28} + \cdots + 15u - 25)$
c_8, c_{10}	$(u^{29} + 9u^{28} + \cdots - u + 1)$

III. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_7	$(y^{29} - 9y^{28} + \cdots - y - 1)$
c_2, c_3, c_5	$(y^{29} + 31y^{28} + \cdots + 15y - 1)$
c_4, c_9	$(y^{29} + 7y^{28} + \cdots - y - 1)$
c_6	$(y^{29} + 11y^{28} + \cdots - 2925y - 625)$
c_8, c_{10}	$(y^{29} + 23y^{28} + \cdots - 17y - 1)$