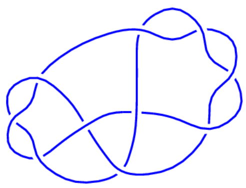
10_{19} $(K10a_{108})$



[1]

Arc Sequences

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

7 8 6 9 10 1 2 5 4 3

Solving Sequence

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

Representation Ideals

$$I = I_1^u$$

$$I_1^u = \langle u^{25} + u^{24} + \cdots - u - 1 \rangle$$

There are 1 irreducible components with 25 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. $I_1^u = \langle u^{25} + u^{24} + \cdots - u - 1 \rangle$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -u^4 - u^2 + 1 \\ -u^6 - 2u^4 - u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u^8 + 3u^6 + u^4 - 2u^2 + 1 \\ u^{10} + 4u^8 + 5u^6 + 2u^4 + u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^{15} + 6u^{13} + 12u^{11} + 6u^9 - 6u^7 - 2u^5 + 4u^3 \\ u^{17} + 7u^{15} + 19u^{13} + 24u^{11} + 13u^9 + 2u^7 + u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} u^{12} + 5u^{10} + 9u^8 + 6u^6 - u^2 + 1 \\ -u^{12} - 4u^{10} - 4u^8 + 2u^6 + 3u^4 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u^{23} + 10u^{21} + \cdots + 4u^5 - 2u^3 \\ -u^{23} - 9u^{21} + \cdots + 3u^5 + u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= -4u^{24} - 4u^{23} - 48u^{22} - 40u^{21} - 240u^{20} - 164u^{19} - 636u^{18} - 340u^{17} - 920u^{16} - 332u^{15} - 620u^{14} - 36u^{13} - 12u^{12} + 184u^{11} + 140u^{10} + 80u^9 - 56u^8 - 36u^7 - 60u^6 + 12u^4 + 12u^3 + 4u^2 + 2$

(iv) Complex Volumes and Cusp Shapes

Solution to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.700117 - 0.334469I$	$-7.82366 + 6.30957I$	$-3.83367 - 5.57691I$
$u = -0.700117 + 0.334469I$	$-7.82366 - 6.30957I$	$-3.83367 + 5.57691I$
$u = -0.580674 - 0.194968I$	$1.16471 + 0.92486I$	$4.08147 - 1.66278I$
$u = -0.580674 + 0.194968I$	$1.16471 - 0.92486I$	$4.08147 + 1.66278I$
$u = -0.461544 - 0.584785I$	$-8.81533 - 2.31852I$	$-6.07988 - 0.26267I$
$u = -0.461544 + 0.584785I$	$-8.81533 + 2.31852I$	$-6.07988 + 0.26267I$
$u = -0.26972 - 1.43636I$	$-13.4988 + 9.8448I$	$-7.88321 - 5.59341I$
$u = -0.26972 + 1.43636I$	$-13.4988 - 9.8448I$	$-7.88321 + 5.59341I$
$u = -0.224985 - 1.385117I$	$-3.90410 + 3.87050I$	$-2.00448 - 2.43861I$
$u = -0.224985 + 1.385117I$	$-3.90410 - 3.87050I$	$-2.00448 + 2.43861I$
$u = -0.14391 - 1.45939I$	$-15.3081 - 0.2303I$	$-9.77375 - 0.13265I$
$u = -0.14391 + 1.45939I$	$-15.3081 + 0.2303I$	$-9.77375 + 0.13265I$
$u = -0.083328 - 1.136525I$	$-1.41378 + 1.61686I$	$-0.87509 - 4.54712I$
$u = -0.083328 + 1.136525I$	$-1.41378 - 1.61686I$	$-0.87509 + 4.54712I$
$u = 0.15893 - 1.40888I$	$-6.93669 - 1.11527I$	$-8.41631 - 0.71281I$
$u = 0.15893 + 1.40888I$	$-6.93669 + 1.11527I$	$-8.41631 + 0.71281I$
$u = 0.226231 - 1.195335I$	$-7.69988 - 3.32898I$	$-4.74899 + 3.47484I$
$u = 0.226231 + 1.195335I$	$-7.69988 + 3.32898I$	$-4.74899 - 3.47484I$
$u = 0.25437 - 1.41342I$	$-5.58181 - 7.50021I$	$-5.62573 + 7.29113I$
$u = 0.25437 + 1.41342I$	$-5.58181 + 7.50021I$	$-5.62573 - 7.29113I$
$u = 0.333053 - 0.458284I$	$-1.19946 + 0.82124I$	$-4.96410 - 1.46331I$
$u = 0.333053 + 0.458284I$	$-1.19946 - 0.82124I$	$-4.96410 + 1.46331I$
$u = 0.652943 - 0.287492I$	$-0.14392 - 4.18290I$	$-0.98515 + 7.72660I$
$u = 0.652943 + 0.287492I$	$-0.14392 + 4.18290I$	$-0.98515 - 7.72660I$
$u = 0.677492$	-4.07756	0.217763

II. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1, c_2, c_6 c_7	$(u^{25} + u^{24} + \cdots + u - 1)$
c_3	$(u^{25} + 5u^{24} + \cdots - 47u - 11)$
c_4, c_8, c_9	$(u^{25} + u^{24} + \cdots - u - 1)$
c_5	$(u^{25} + u^{24} + \cdots + 3u + 2)$
c_{10}	$(u^{25} + 7u^{24} + \cdots + 41u + 7)$

III. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_2, c_6 c_7	$(y^{25} - 29y^{24} + \cdots + y - 1)$
c_3	$(y^{25} + 11y^{24} + \cdots - 827y - 121)$
c_4, c_8, c_9	$(y^{25} + 23y^{24} + \cdots + y - 1)$
c_5	$(y^{25} + 3y^{24} + \cdots - 31y - 4)$
c_{10}	$(y^{25} - 5y^{24} + \cdots + 197y - 49)$