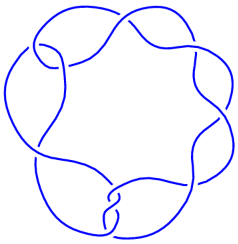
10_{20} $(K10a_{74})$



[1]

Arc Sequences

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

Solving Sequence

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

Representation Ideals

$$I = I_1^u$$

$$I_1^u = \langle u^{17} + u^{16} + \cdots + u + 1 \rangle$$

There are 1 irreducible components with 17 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. $\boldsymbol{I_1^u = \langle u^{17} + u^{16} + 2u^{15} + u^{14} + 7u^{13} + 5u^{12} + 10u^{11} + 4u^{10} + 15u^9 + 7u^8 + 14u^7 + 4u^6 + 10u^5 + 4u^4 + 6u^3 + 2u^2 + u + 1\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u^2 + 1 \\ u^4 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^4 + u^2 + 1 \\ u^6 + u^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} u^6 + u^4 + 2u^2 + 1 \\ u^8 + 2u^4 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -u \\ u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^3 \\ u^3 + u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u^{14} - u^{12} - 4u^{10} - 3u^8 - 2u^6 + 2u^2 + 1 \\ u^{14} + 2u^{12} + 5u^{10} + 8u^8 + 6u^6 + 6u^4 + u^2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u^8 + u^6 + 3u^4 + 2u^2 + 1 \\ u^{10} + 3u^6 + u^2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^{15} - 4u^{14} - 8u^{13} - 4u^{12} - 28u^{11} - 20u^{10} - 36u^9 - 16u^8 - 56u^7 - 28u^6 - 40u^5 - 16u^4 - 28u^3 - 16u^2 - 12u - 10$

(iv) Complex Volumes and Cusp Shapes

Solution to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.929005 - 0.919626I$	$10.01244 - 1.56927I$	$-3.08060 + 0.65050I$
$u = -0.929005 + 0.919626I$	$10.01244 + 1.56927I$	$-3.08060 - 0.65050I$
$u = -0.905075 - 0.964023I$	$9.86681 + 8.31738I$	$-3.35967 - 5.18877I$
$u = -0.905075 + 0.964023I$	$9.86681 - 8.31738I$	$-3.35967 + 5.18877I$
$u = -0.672243 - 0.786311I$	$3.89229 + 2.50454I$	$0.07700 - 3.85927I$
$u = -0.672243 + 0.786311I$	$3.89229 - 2.50454I$	$0.07700 + 3.85927I$
$u = -0.522950$	-2.09753	-3.69425
$u = -0.208716 - 0.869278I$	$-4.71727 + 2.28997I$	$-12.30509 - 4.71022I$
$u = -0.208716 + 0.869278I$	$-4.71727 - 2.28997I$	$-12.30509 + 4.71022I$
$u = 0.231740 - 0.588876I$	$-0.289621 - 0.926552I$	$-5.50330 + 7.34204I$
$u = 0.231740 + 0.588876I$	$-0.289621 + 0.926552I$	$-5.50330 - 7.34204I$
$u = 0.616947 - 0.891729I$	$-0.19933 - 6.12281I$	$-5.66204 + 6.84601I$
$u = 0.616947 + 0.891729I$	$-0.19933 + 6.12281I$	$-5.66204 - 6.84601I$
$u = 0.706998 - 0.642933I$	$0.607153 + 1.195373I$	$-3.40206 - 0.58854I$
$u = 0.706998 + 0.642933I$	$0.607153 - 1.195373I$	$-3.40206 + 0.58854I$
$u = 0.920829 - 0.944574I$	$13.9525 - 3.3872I$	$0.08288 + 2.32417I$
$u = 0.920829 + 0.944574I$	$13.9525 + 3.3872I$	$0.08288 - 2.32417I$

II. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1, c_3, c_4 c_8, c_{10}	$(u^{17} + 3u^{16} + \cdots - 3u - 1)$
c_2, c_7	$(u^{17} + u^{16} + \cdots + u + 1)$
c_5, c_6, c_9	$(u^{17} + u^{16} + \cdots + 3u - 1)$

III. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_3, c_4 c_8, c_{10}	$(y^{17} + 23y^{16} + \cdots + 9y - 1)$
c_2, c_7	$(y^{17} + 3y^{16} + \cdots - 3y - 1)$
c_5, c_6, c_9	$(y^{17} - 13y^{16} + \cdots - 3y - 1)$