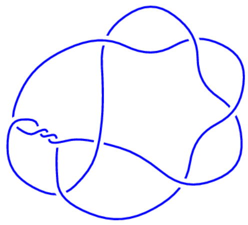
10_{17} $(K10a_{107})$



1

Arc Sequences

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

Solving Sequence

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

Representation Ideals

$$I = I_1^u$$

$$I_1^u = \langle u^{20} + u^{19} + \cdots - u^2 + 1 \rangle$$

There are 1 irreducible components with 20 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.

$$\boldsymbol{I_1^u = \langle u^{20} + u^{19} - 11u^{18} - 10u^{17} + 49u^{16} + 38u^{15} - 114u^{14} - 66u^{13} + 152u^{12} + 47u^{11} - 125u^{10} - 4u^9 + 67u^8 - 8u^7 - 20u^6 + 10u^5 + 5u^4 - 3u^3 - u^2 + 1\rangle}$$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u \\ u \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} -u^6 + 3u^4 - 2u^2 + 1 \\ -u^6 + 2u^4 + u^2 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^{15} + 8u^{13} - 24u^{11} + 34u^9 - 26u^7 + 14u^5 - 4u^3 \\ -u^{15} + 7u^{13} - 16u^{11} + 11u^9 + 2u^7 + u \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} u^{15} - 8u^{13} + 24u^{11} - 34u^9 + 26u^7 - 14u^5 + 4u^3 \\ u^{17} - 9u^{15} + 31u^{13} - 50u^{11} + 37u^9 - 12u^7 + 4u^5 + u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u^{18} - 44u^{16} + 192u^{14} - 4u^{13} - 420u^{12} + 32u^{11} + 484u^{10} - 92u^9 - 296u^8 + 112u^7 + 100u^6 - 56u^5 - 4u^4 + 20u^3 - 4u^2 - 4u - 2$

(iv) Complex Volumes and Cusp Shapes

Solution to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.58631-0.15748I$	$-8.53676I$	$4.57594I$
$u=-1.58631+0.15748I$	$8.53676I$	$-4.57594I$
$u=-1.58303-0.08477I$	$-8.68051-2.11373I$	$-5.79765+0.04379I$
$u=-1.58303+0.08477I$	$-8.68051+2.11373I$	$-5.79765-0.04379I$
$u=-1.38695$	3.92816	1.96122
$u=-0.886444$	4.43265	-0.716387
$u=-0.638615-0.441759I$	$-3.91005I$	$8.23335I$
$u=-0.638615+0.441759I$	$3.91005I$	$-8.23335I$
$u=-0.232031-0.442395I$	$1.152208+0.756271I$	$5.04397-1.60900I$
$u=-0.232031+0.442395I$	$1.152208-0.756271I$	$5.04397+1.60900I$
$u=0.265798-0.599404I$	$8.68051-2.11373I$	$5.79765+0.04379I$
$u=0.265798+0.599404I$	$8.68051+2.11373I$	$5.79765-0.04379I$
$u=0.613121-0.271451I$	$-1.152208+0.756271I$	$-5.04397-1.60900I$
$u=0.613121+0.271451I$	$-1.152208-0.756271I$	$-5.04397+1.60900I$
$u=0.653943-0.534643I$	$7.54354+5.98288I$	$2.92800-5.90364I$
$u=0.653943+0.534643I$	$7.54354-5.98288I$	$2.92800+5.90364I$
$u=1.51222$	-4.43265	0.716387
$u=1.58517-0.12489I$	$-7.54354+5.98288I$	$-2.92800-5.90364I$
$u=1.58517+0.12489I$	$-7.54354-5.98288I$	$-2.92800+5.90364I$
$u=1.60509$	-3.92816	-1.96122

II. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1, c_2, c_4 c_5, c_6, c_7 c_8, c_9	$(u^{20} + u^{19} + \cdots - u^2 + 1)$
c_3, c_{10}	$(u^{20} + 5u^{19} + \cdots - 4u + 1)$

III. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_2, c_4 c_5, c_6, c_7 c_8, c_9	$(y^{20} - 23y^{19} + \cdots - 2y + 1)$
c_3, c_{10}	$(y^{20} + y^{19} + \cdots - 46y + 1)$