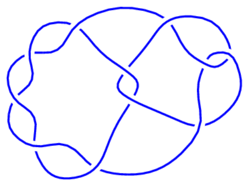
$11a_{62}$ $(K11a_{62})$



[1]

Arc Sequences

$\rightarrow \uparrow 5 \rightarrow \downarrow 1 \rightarrow \uparrow 9 \rightarrow \uparrow 2 \rightarrow \downarrow 4 \rightarrow \uparrow 10 \rightarrow \uparrow 11 \rightarrow \uparrow 3 \rightarrow \uparrow 6 \rightarrow \uparrow 7 \rightarrow \uparrow 8 \rightarrow$

Solving Sequence

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

Representation Ideals

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

$$I_1^u = \langle a^4 - a^3 + 2a^2 + a + 1,\ -a^3 + 2b - 1,\ a^3 - 2a^2 + 2a + 2u + 1\rangle$$
$$I_2^u = \langle u^{31} + 3u^{30} + \cdots + 4u - 1,\ u^{30} + 4u^{29} + \cdots + 2b - 4,\ -2u^{30} - 5u^{29} + \cdots + 2a - 3\rangle$$

There are 2 irreducible components with 35 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. $\boldsymbol{I_1^u = \langle a^4 - a^3 + 2a^2 + a + 1,\ -a^3 + 2b - 1,\ a^3 - 2a^2 + 2a + 2u + 1\rangle}$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0 \\ -\frac{1}{2}a^3 + a^2 - a - \frac{1}{2} \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 1 \\ -\frac{1}{2}a^3 + a^2 - a + \frac{1}{2} \end{pmatrix}$$

$$a_3 = \begin{pmatrix} \frac{1}{2}a^3 - a^2 + a + \frac{1}{2} \\ -\frac{1}{2}a^3 + a^2 - a + \frac{1}{2} \end{pmatrix}$$

$$a_4 = \begin{pmatrix} \frac{1}{2}a^3 - a^2 + a + \frac{1}{2} \\ -\frac{1}{2}a^3 + a^2 - a + \frac{1}{2} \end{pmatrix}$$

$$a_8 = \begin{pmatrix} a \\ \frac{1}{2}a^3 + \frac{1}{2} \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} \frac{1}{2}a^3 - a^2 + \frac{1}{2} \\ -\frac{1}{2}a^3 + \frac{1}{2} \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -a^2 - 1 \\ -\frac{1}{2}a^3 + \frac{1}{2} \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} \frac{1}{2}a^3 + a + \frac{1}{2} \\ \frac{1}{2}a^3 + \frac{1}{2} \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} a \\ \frac{1}{2}a^3 + \frac{1}{2} \end{pmatrix}$$

$$a_9 = \begin{pmatrix} a \\ \frac{1}{2}a^3 + \frac{1}{2} \end{pmatrix}$$

(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
$u=-0.500000+0.866025I$ $a=-0.309017-0.535233I$ $b=\ \ 0.618034$	$0.98696-2.02988I$	$13.50000+1.52761I$
$u=-0.500000-0.866025I$ $a=-0.309017+0.535233I$ $b=\ \ 0.618034$	$0.98696+2.02988I$	$13.50000-1.52761I$
$u=-0.500000-0.866025I$ $a=\ \ 0.80902-1.40126I$ $b=-1.61803$	$8.88264+2.02988I$	$13.5000-5.4006I$
$u=-0.500000+0.866025I$ $a=\ \ 0.80902+1.40126I$ $b=-1.61803$	$8.88264-2.02988I$	$13.5000+5.4006I$

II.

$$I_2^u = \langle u^{31}+3u^{30}+\cdots+4u-1,\ u^{30}+4u^{29}+\cdots+2b-4,\ -2u^{30}-5u^{29}+\cdots+2a-3\rangle$$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u^2+1 \\ -u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u \\ u^3+u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^{30}+\frac{5}{2}u^{29}+\cdots-\frac{9}{2}u+\frac{3}{2} \\ -\frac{1}{2}u^{30}-2u^{29}+\cdots-\frac{15}{2}u+2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -\frac{1}{2}u^{29}-u^{28}+\cdots-\frac{11}{2}u+\frac{5}{2} \\ -\frac{1}{2}u^{30}-u^{29}+\cdots-\frac{9}{2}u^2+\frac{3}{2}u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -\frac{1}{2}u^{30}-\frac{3}{2}u^{29}+\cdots-4u+\frac{3}{2} \\ -\frac{1}{2}u^{30}-u^{29}+\cdots-\frac{11}{2}u^2+\frac{5}{2}u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} \frac{7}{2}u^{30}+\frac{17}{2}u^{29}+\cdots+u+\frac{1}{2} \\ -\frac{3}{2}u^{30}-5u^{29}+\cdots-\frac{25}{2}u+3 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -u^3 \\ u^5+u^3+u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 5u^{30}+\frac{23}{2}u^{29}+\cdots+\frac{11}{2}u-\frac{1}{2} \\ -\frac{7}{2}u^{30}-11u^{29}+\cdots-\frac{41}{2}u+5 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 5u^{30}+\frac{23}{2}u^{29}+\cdots+\frac{11}{2}u-\frac{1}{2} \\ -\frac{7}{2}u^{30}-11u^{29}+\cdots-\frac{41}{2}u+5 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.946219 - 0.746672I$ $a = -2.12192 + 0.11225I$ $b = 1.77250 - 0.08381I$	$-19.0119 - 4.1870I$	$15.8548 + 0.8284I$
$u = -0.946219 + 0.746672I$ $a = -2.12192 - 0.11225I$ $b = 1.77250 + 0.08381I$	$-19.0119 + 4.1870I$	$15.8548 - 0.8284I$
$u = -0.873062 - 0.782073I$ $a = 1.164862 - 0.126074I$ $b = -1.174384 + 0.329803I$	$9.85498 - 2.40122I$	$15.3857 + 1.4439I$
$u = -0.873062 + 0.782073I$ $a = 1.164862 + 0.126074I$ $b = -1.174384 - 0.329803I$	$9.85498 + 2.40122I$	$15.3857 - 1.4439I$
$u = -0.808747 - 1.050530I$ $a = -1.71122 + 1.82861I$ $b = 1.76039 + 0.10095I$	$19.5055 + 10.6386I$	$14.5840 - 5.4075I$
$u = -0.808747 + 1.050530I$ $a = -1.71122 - 1.82861I$ $b = 1.76039 - 0.10095I$	$19.5055 - 10.6386I$	$14.5840 + 5.4075I$
$u = -0.804417 - 0.851873I$ $a = -0.0352763 - 0.0499354I$ $b = 0.422649 - 0.629353I$	$4.80361 + 0.89095I$	$12.16176 + 0.45664I$
$u = -0.804417 + 0.851873I$ $a = -0.0352763 + 0.0499354I$ $b = 0.422649 + 0.629353I$	$4.80361 - 0.89095I$	$12.16176 - 0.45664I$
$u = -0.795593 - 0.997251I$ $a = 1.29329 - 1.27823I$ $b = -1.127597 - 0.375707I$	$9.18803 + 8.59967I$	$14.1525 - 6.5112I$
$u = -0.795593 + 0.997251I$ $a = 1.29329 + 1.27823I$ $b = -1.127597 + 0.375707I$	$9.18803 - 8.59967I$	$14.1525 + 6.5112I$

Solution to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.785032 - 0.926266I$ $a = -0.754700 + 0.565679I$ $b = 0.348369 + 0.655737I$	$4.57379 + 5.07655I$	$11.28457 - 5.75893I$
$u = -0.785032 + 0.926266I$ $a = -0.754700 - 0.565679I$ $b = 0.348369 - 0.655737I$	$4.57379 - 5.07655I$	$11.28457 + 5.75893I$
$u = -0.303063 - 0.683718I$ $a = 0.91670 - 2.25476I$ $b = -1.63009 - 0.03537I$	$8.61876 + 1.24218I$	$9.97283 + 3.03078I$
$u = -0.303063 + 0.683718I$ $a = 0.91670 + 2.25476I$ $b = -1.63009 + 0.03537I$	$8.61876 - 1.24218I$	$9.97283 - 3.03078I$
$u = -0.042918 - 0.628938I$ $a = -0.38614 + 1.63934I$ $b = 0.698660 + 0.209211I$	$0.456932 + 0.462087I$	$9.00639 - 0.86680I$
$u = -0.042918 + 0.628938I$ $a = -0.38614 - 1.63934I$ $b = 0.698660 - 0.209211I$	$0.456932 - 0.462087I$	$9.00639 + 0.86680I$
$u = 0.202855 - 0.853334I$ $a = 0.294531 - 0.985343I$ $b = 0.099887 - 0.392148I$	$-1.25989 - 1.71484I$	$2.62221 + 5.71238I$
$u = 0.202855 + 0.853334I$ $a = 0.294531 + 0.985343I$ $b = 0.099887 + 0.392148I$	$-1.25989 + 1.71484I$	$2.62221 - 5.71238I$
$u = 0.210166$ $a = 1.28907$ $b = 0.394527$	0.662850	15.1240
$u = 0.303029 - 1.067218I$ $a = -0.228899 + 0.958831I$ $b = -0.979024 + 0.144758I$	$2.01140 - 3.46353I$	$11.93946 + 5.35734I$

Solution to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.303029 + 1.067218I$ $a = -0.228899 - 0.958831I$ $b = -0.979024 - 0.144758I$	$2.01140 + 3.46353I$	$11.93946 - 5.35734I$
$u = 0.311600 - 1.179297I$ $a = -0.048753 - 1.133150I$ $b = 1.72918 - 0.03341I$	$11.77945 - 4.15554I$	$12.19280 + 3.43809I$
$u = 0.311600 + 1.179297I$ $a = -0.048753 + 1.133150I$ $b = 1.72918 + 0.03341I$	$11.77945 + 4.15554I$	$12.19280 - 3.43809I$
$u = 0.561939 - 0.852674I$ $a = 0.702049 + 0.319319I$ $b = -0.268160 + 0.102485I$	$0.38814 - 2.23506I$	$1.04827 + 4.75217I$
$u = 0.561939 + 0.852674I$ $a = 0.702049 - 0.319319I$ $b = -0.268160 - 0.102485I$	$0.38814 + 2.23506I$	$1.04827 - 4.75217I$
$u = 0.725665$ $a = 1.04657$ $b = -1.11047$	5.42058	16.8256
$u = 0.736473 - 0.867774I$ $a = -1.83888 - 0.86117I$ $b = 1.077394 - 0.054634I$	$4.65693 - 2.79600I$	$13.44598 + 3.14561I$
$u = 0.736473 + 0.867774I$ $a = -1.83888 + 0.86117I$ $b = 1.077394 + 0.054634I$	$4.65693 + 2.79600I$	$13.44598 - 3.14561I$
$u = 0.825231 - 0.899649I$ $a = 2.62944 + 1.17740I$ $b = -1.75006 + 0.01346I$	$14.9045 - 3.0785I$	$14.0980 + 2.4882I$
$u = 0.825231 + 0.899649I$ $a = 2.62944 - 1.17740I$ $b = -1.75006 - 0.01346I$	$14.9045 + 3.0785I$	$14.0980 - 2.4882I$

Solution to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.900014$ $a = -2.08581$ $b = 1.75654$	15.8245	16.5519

III. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1	$(u^2+u+1)^2(u^{31}+3u^{30}+\cdots+4u-1)$
c_2, c_5	$(u^2+u+1)^2(u^{31}+9u^{30}+\cdots+12u-1)$
c_3, c_8	$u^4(u^{31}+u^{30}+\cdots-20u^2+16)$
c_4	$(u^2-u+1)^2(u^{31}+3u^{30}+\cdots+4u-1)$
c_6, c_7	$(u^2-u-1)^2(u^{31}+3u^{30}+\cdots+12u^2-1)$
c_9, c_{10}, c_{11}	$(u^2+u-1)^2(u^{31}+3u^{30}+\cdots+12u^2-1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_4	$(y^2+y+1)^2(y^{31}+9y^{30}+\cdots+12y-1)$
c_2, c_5	$(y^2+y+1)^2(y^{31}+29y^{30}+\cdots+524y-1)$
c_3, c_8	$y^4(y^{31}-25y^{30}+\cdots+640y-256)$
c_6, c_7, c_9	$(y^2-3y+1)^2(y^{31}-43y^{30}+\cdots+24y-1)$
c_{10}	$1.00000000000(1y^2-3.00000000000y+1.00000000000)^2$ $(1y^{31}-43.000000000y^{30}+\cdots+24.0000000000y-1.00000000000)$
c_{11}	1.000000000000 $(1y^2-3.00000000000y+1.000000000000)^2$ $(1.00y^{31}-43.0y^{30}+\cdots+24.0y-1.00)$