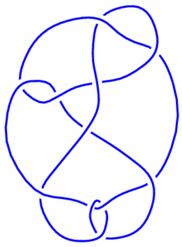
$11n_{51}$ ($K11n_{51}$)



[1]

Arc Sequences

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

4 1 7 2 9 10 3 1 11 6 7

Solving Sequence

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

Representation Ideals

$$I = I_1^u \bigcap I_1^v$$

$$I_1^u = \langle u^{19} + u^{18} + \cdots + 32u + 32,\ 3.89161 \times 10^{18}u^{18} - 1.25291 \times 10^{19}u^{17} + \cdots + 1.19579 \times 10^{21}a - 2.43773 \times 10^{2}$$
$$4.27694 \times 10^{19}u^{18} + 2.93614 \times 10^{19}u^{17} + \cdots + 2.39158 \times 10^{21}b + 7.99100 \times 10^{20}\rangle$$

$$I_1^v = \langle -v^3 + b + 2v,\ v^5 + v^4 - 2v^3 - v^2 + v - 1,\ a\rangle$$

There are 2 irreducible components with 24 representations.

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[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. $I_1^u =$
$\langle u^{19}+u^{18}+\cdots+32u+32,\ 3.89\times10^{18}u^{18}-1.25\times10^{19}u^{17}+\cdots+1.20\times10^{21}a-2.44\times10^{21},\ 4.28\times10^{19}u^{18}+2.94\times10^{19}u^{17}+\cdots+2.39\times10^{21}b+7.99\times10^{20}\rangle$

(i) Arc colorings

$$a_4 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_7 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_3 = \begin{pmatrix}1\\-u^2\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-0.00325443u^{18}+0.0104777u^{17}+\cdots+1.47789u+2.03859\\-0.0178833u^{18}-0.0122770u^{17}+\cdots+0.528252u-0.334131\end{pmatrix}$$
$$a_6 = \begin{pmatrix}0.0334283u^{18}+0.0315554u^{17}+\cdots+2.33117u-0.293509\\-0.00547265u^{18}+0.00812761u^{17}+\cdots+0.354335u+0.00511905\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}-0.0126757u^{18}-0.0158711u^{17}+\cdots-0.965637u+0.712666\\-0.0119895u^{18}-0.00312216u^{17}+\cdots-0.280593u-0.182519\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-0.0126757u^{18}-0.0158711u^{17}+\cdots-0.965637u+0.712666\\-0.0154120u^{18}-0.0118073u^{17}+\cdots-0.788470u-0.284774\end{pmatrix}$$
$$a_2 = \begin{pmatrix}0.00273632u^{18}-0.00406381u^{17}+\cdots-0.177167u+0.997440\\-0.0154120u^{18}-0.0118073u^{17}+\cdots-0.788470u-0.284774\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-0.0246651u^{18}-0.0189933u^{17}+\cdots-1.24623u+0.530148\\0.0119895u^{18}+0.00312216u^{17}+\cdots+0.280593u+0.182519\end{pmatrix}$$
$$a_9 = \begin{pmatrix}-0.00225903u^{18}+0.00481394u^{17}+\cdots+0.299894u+0.940474\\-0.00680013u^{18}-0.00393377u^{17}+\cdots+0.909878u-0.0875624\end{pmatrix}$$
$$a_8 = \begin{pmatrix}-u\\u^3+u\end{pmatrix}$$
$$a_8 = \begin{pmatrix}-u\\u^3+u\end{pmatrix}$$

(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
$u = -0.66687 - 1.26708I$ $a = -0.868526 - 0.181292I$ $b = 2.01097 - 0.37234I$	$6.61331 - 2.23643I$	$3.68670 + 1.85634I$
$u = -0.66687 + 1.26708I$ $a = -0.868526 + 0.181292I$ $b = 2.01097 + 0.37234I$	$6.61331 + 2.23643I$	$3.68670 - 1.85634I$
$u = -0.559824$ $a = 0.520700$ $b = -0.696990$	-1.12234	-9.25558
$u = -0.55184 - 2.12917I$ $a = 0.624151 - 0.075817I$ $b = -3.70077 - 0.64779I$	$17.2204 - 9.5042I$	$1.84766 + 4.86373I$
$u = -0.55184 + 2.12917I$ $a = 0.624151 + 0.075817I$ $b = -3.70077 + 0.64779I$	$17.2204 + 9.5042I$	$1.84766 - 4.86373I$
$u = -0.377279 - 0.570351I$ $a = 0.928450 + 0.852722I$ $b = -1.60892 - 0.88722I$	$-0.904771 + 0.899537I$	$0.47063 + 1.75855I$
$u = -0.377279 + 0.570351I$ $a = 0.928450 - 0.852722I$ $b = -1.60892 + 0.88722I$	$-0.904771 - 0.899537I$	$0.47063 - 1.75855I$
$u = -0.33784 - 2.24339I$ $a = -0.540132 - 0.287132I$ $b = 3.20814 - 0.98987I$	$17.5665 + 0.7457I$	$2.31305 - 0.82283I$
$u = -0.33784 + 2.24339I$ $a = -0.540132 + 0.287132I$ $b = 3.20814 + 0.98987I$	$17.5665 - 0.7457I$	$2.31305 + 0.82283I$
$u = -0.118930 - 1.200608I$ $a = 0.902998 + 0.509171I$ $b = -1.28119 + 1.32428I$	$5.36309 + 6.16703I$	$2.22619 - 6.06641I$

Solution to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.118930 + 1.200608I$ $a = 0.902998 - 0.509171I$ $b = -1.28119 - 1.32428I$	$5.36309 - 6.16703I$	$2.22619 + 6.06641I$
$u = 0.113652 - 0.545215I$ $a = 1.25949 - 1.01771I$ $b = 0.107580 - 0.561696I$	$0.05095 - 1.76235I$	$0.18768 + 4.49049I$
$u = 0.113652 + 0.545215I$ $a = 1.25949 + 1.01771I$ $b = 0.107580 + 0.561696I$	$0.05095 + 1.76235I$	$0.18768 - 4.49049I$
$u = 0.349333 - 1.064248I$ $a = 0.342118 + 0.593985I$ $b = 0.144940 + 0.182376I$	$2.51975 - 1.53406I$	$-0.31883 + 1.85733I$
$u = 0.349333 + 1.064248I$ $a = 0.342118 - 0.593985I$ $b = 0.144940 - 0.182376I$	$2.51975 + 1.53406I$	$-0.31883 - 1.85733I$
$u = 0.42263 - 2.12489I$ $a = -0.069295 - 0.437160I$ $b = 0.299792 + 0.326685I$	$13.37814 + 4.28212I$	$-1.00628 - 2.00074I$
$u = 0.42263 + 2.12489I$ $a = -0.069295 + 0.437160I$ $b = 0.299792 - 0.326685I$	$13.37814 - 4.28212I$	$-1.00628 + 2.00074I$
$u = 0.947060 - 0.059794I$ $a = -0.339607 + 1.065378I$ $b = 0.667953 + 0.197417I$	$1.26128 + 2.36565I$	$1.22099 - 4.76618I$
$u = 0.947060 + 0.059794I$ $a = -0.339607 - 1.065378I$ $b = 0.667953 - 0.197417I$	$1.26128 - 2.36565I$	$1.22099 + 4.76618I$

II. $\boldsymbol{I_1^v = \langle -v^3 + b + 2v,\ v^5 + v^4 - 2v^3 - v^2 + v - 1,\ a\rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

$$a_{10} = \begin{pmatrix} 0 \\ v^3 - 2v \end{pmatrix}$$

$$a_6 = \begin{pmatrix} v \\ -v^2 + 1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} v^4 - v^2 + v - 1 \\ -1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} v^4 - 2v^2 + v - 1 \\ -1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} v^4 - 2v^2 + v \\ -1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -v^4 + 2v^2 - v + 1 \\ 1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -v^4 + 2v^2 - v + 1 \\ -v \end{pmatrix}$$

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_1^v	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$v = -1.41878 - 0.21917I$ $a = 0$ $b = 0.186078 - 0.874646I$	$4.22763 + 4.40083I$	$1.17182 - 3.02310I$
$v = -1.41878 + 0.21917I$ $a = 0$ $b = 0.186078 + 0.874646I$	$4.22763 - 4.40083I$	$1.17182 + 3.02310I$
$v = 0.309916 - 0.549911I$ $a = 0$ $b = -0.871221 + 1.107662I$	$-1.31583 - 1.53058I$	$-6.99101 + 6.23673I$
$v = 0.309916 + 0.549911I$ $a = 0$ $b = -0.871221 - 1.107662I$	$-1.31583 + 1.53058I$	$-6.99101 - 6.23673I$
$v = 1.21774$ $a = 0$ $b = -0.629714$	0.756147	-2.36161

III. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1	$(u-1)^5(u^{19}+6u^{18}+\cdots-6u-1)$
c_2	$(u+1)^5(u^{19}+22u^{17}+\cdots+10u+1)$
c_3, c_7	$u^5(u^{19}+u^{18}+\cdots+32u+32)$
c_4	$(u+1)^5(u^{19}+6u^{18}+\cdots-6u-1)$
c_5	$(u^5-u^4+\cdots+u+1)(u^{19}+2u^{18}+\cdots+2u-1)$
c_6	$(u^5+u^4+\cdots+u+1)(u^{19}+2u^{18}+\cdots+4u+1)$
c_8	$(u^5-u^4+\cdots+u+1)(u^{19}+8u^{18}+\cdots+3614u-53)$
c_9	$(u^5+3u^4+\cdots-u-1)(u^{19}+12u^{18}+\cdots+8u-1)$
c_{10}	$(u^5-u^4+\cdots+u-1)(u^{19}+2u^{18}+\cdots+4u+1)$
c_{11}	$(u^5+u^4+\cdots+u-1)(u^{19}+2u^{18}+\cdots+2u-1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_4	$(y-1)^5(y^{19}+22y^{17}+\cdots+10y-1)$
c_2	$(y-1)^5(y^{19}+44y^{18}+\cdots-82y-1)$
c_3, c_7	$y^5(y^{19}+33y^{18}+\cdots-6656y-1024)$
c_5, c_{11}	$(y^5-5y^4+\cdots-y-1)(y^{19}-28y^{18}+\cdots+8y-1)$
c_6, c_{10}	$(y^5+3y^4+\cdots-y-1)(y^{19}+12y^{18}+\cdots+8y-1)$
c_8	$(y^5-5y^4+\cdots-y-1)(y^{19}-88y^{18}+\cdots+1.13576\times 10^7y-2809)$
c_9	$(y^5-y^4+\cdots+3y-1)(y^{19}-8y^{18}+\cdots+148y-1)$