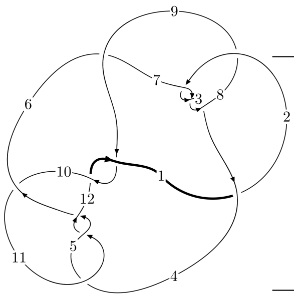
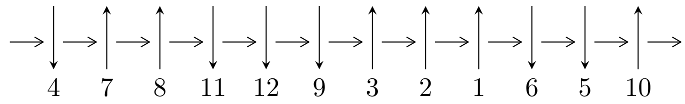
$12a_{1039}$ ($K12a_{1039}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

$$4,8 \underset{c_3}{\rightarrow} 3 \underset{c_7}{\rightarrow} 7 \underset{c_2}{\rightarrow} 2 \underset{c_8}{\rightarrow} 9 \underset{c_1}{\rightarrow} 1 \underset{c_9}{\rightarrow} 10 \underset{c_6}{\rightarrow} 6 \underset{c_{10}}{\rightarrow} 11 \underset{c_{12}}{\rightarrow} 12 \underset{c_5}{\rightarrow} 5 \gg c_4, c_{11}$$

Ideals for irreducible components[2] of $X_{\mathbf{par}}$

$$I_1^u = \langle u^{68} - u^{67} + \cdots + 3u^2 + 1 \rangle$$

* 1 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 68 representations.

[1]The image of knot diagram is generated by the software "**Draw programme**" developed by Andrew Bartholomew(`http://www.layer8.co.uk/maths/draw/index.htm#Running-draw`), where we modified some parts for our purpose(`https://github.com/CATsTAILs/LinksPainter`).

[2]All coefficients of polynomials are rational numbers. But the coefficients are sometimes approximated in decimal forms when there is not enough margin.

I. $I_1^u = \langle u^{68} - u^{67} + \cdots + 3u^2 + 1 \rangle$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -u^2 + 1 \\ -u^4 + 2u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u^5 - 2u^3 + u \\ u^7 - 3u^5 + 2u^3 + u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u^4 + u^2 + 1 \\ -u^4 + 2u^2 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u^{15} - 6u^{13} + 12u^{11} - 6u^9 - 6u^7 + 4u^5 + 2u \\ u^{15} - 7u^{13} + 18u^{11} - 19u^9 + 6u^7 - 2u^5 + 4u^3 + u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -u^9 + 4u^7 - 5u^5 + 2u^3 - u \\ -u^{11} + 5u^9 - 8u^7 + 3u^5 + u^3 + u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u^{35} - 16u^{33} + \cdots - 3u^3 + 2u \\ u^{37} - 17u^{35} + \cdots + 7u^3 + u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -u^{26} + 11u^{24} + \cdots + 3u^2 + 1 \\ -u^{26} + 12u^{24} + \cdots + 4u^4 + 3u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u^{63} + 28u^{61} + \cdots + 22u^5 + 12u^3 \\ -u^{63} + 29u^{61} + \cdots + 4u^3 + u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^{66} + 124u^{64} + \cdots + 16u - 2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_6	$u^{68} - 11u^{67} + \cdots - 1692u + 113$
c_2, c_3, c_7	$u^{68} + u^{67} + \cdots + 3u^2 + 1$
c_4, c_5, c_{11}	$u^{68} - u^{67} + \cdots + 3u^2 + 1$
c_8	$u^{68} - 3u^{67} + \cdots + 630u - 369$
c_9, c_{12}	$u^{68} + 11u^{67} + \cdots + 1692u + 113$
c_{10}	$u^{68} + 3u^{67} + \cdots - 630u - 369$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_6, c_9 c_{12}	$y^{68} + 49y^{67} + \cdots + 20218y + 12769$
c_2, c_3, c_4 c_5, c_7, c_{11}	$y^{68} - 63y^{67} + \cdots + 6y + 1$
c_8, c_{10}	$y^{68} - 19y^{67} + \cdots - 2666250y + 136161$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad 1.16639$	-2.36439	0
$u = \quad 1.185360 + 0.209451I$	$-6.83305 - 1.72993I$	0
$u = \quad 1.185360 - 0.209451I$	$-6.83305 + 1.72993I$	0
$u = -0.365893 + 0.690572I$	$-5.83372 - 10.83810I$	$-3.95689 + 8.43769I$
$u = -0.365893 - 0.690572I$	$-5.83372 + 10.83810I$	$-3.95689 - 8.43769I$
$u = -1.208360 + 0.195557I$	$-0.669905 - 1.153560I$	0
$u = -1.208360 - 0.195557I$	$-0.669905 + 1.153560I$	0
$u = \quad 0.366622 + 0.678680I$	$7.42138I$	$0. - 8.76802I$
$u = \quad 0.366622 - 0.678680I$	$- 7.42138I$	$0. + 8.76802I$
$u = -0.411460 + 0.633737I$	$0.45656 - 5.12674I$	$0.57871 + 7.03241I$
$u = -0.411460 - 0.633737I$	$0.45656 + 5.12674I$	$0.57871 - 7.03241I$
$u = -0.353617 + 0.662232I$	$-0.67977 - 3.43697I$	$-1.83810 + 2.79608I$
$u = -0.353617 - 0.662232I$	$-0.67977 + 3.43697I$	$-1.83810 - 2.79608I$
$u = \quad 1.231400 + 0.212602I$	$-0.45656 + 5.12674I$	0
$u = \quad 1.231400 - 0.212602I$	$-0.45656 - 5.12674I$	0
$u = \quad 0.330337 + 0.672943I$	$-7.00321 + 0.97426I$	$-5.71997 - 2.85709I$
$u = \quad 0.330337 - 0.672943I$	$-7.00321 - 0.97426I$	$-5.71997 + 2.85709I$
$u = -0.548441 + 0.510750I$	$-5.09005 + 6.77785I$	$-2.21904 - 2.56386I$
$u = -0.548441 - 0.510750I$	$-5.09005 - 6.77785I$	$-2.21904 + 2.56386I$
$u = -1.231440 + 0.231517I$	$-6.47567 - 8.30107I$	0
$u = -1.231440 - 0.231517I$	$-6.47567 + 8.30107I$	0
$u = \quad 0.427107 + 0.604623I$	$4.25225 + 1.96489I$	$6.41876 - 3.80214I$
$u = \quad 0.427107 - 0.604623I$	$4.25225 - 1.96489I$	$6.41876 + 3.80214I$
$u = -0.457025 + 0.579336I$	$0.669905 + 1.153560I$	$1.403435 - 0.101236I$
$u = -0.457025 - 0.579336I$	$0.669905 - 1.153560I$	$1.403435 + 0.101236I$
$u = \quad 0.524039 + 0.507598I$	$0.67977 - 3.43697I$	$1.83810 + 2.79608I$
$u = \quad 0.524039 - 0.507598I$	$0.67977 + 3.43697I$	$1.83810 - 2.79608I$
$u = -1.28430$	2.97683	0
$u = \quad 0.540694 + 0.417882I$	$-6.07300 + 2.79125I$	$-3.29801 - 3.53193I$
$u = \quad 0.540694 - 0.417882I$	$-6.07300 - 2.79125I$	$-3.29801 + 3.53193I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.484269 + 0.469339I$	$-0.351863I$	$0. + 3.89168I$
$u = -0.484269 - 0.469339I$	$0.351863I$	$0. - 3.89168I$
$u = 0.026103 + 0.672070I$	$-10.31710 + 4.99618I$	$-9.53537 - 3.59644I$
$u = 0.026103 - 0.672070I$	$-10.31710 - 4.99618I$	$-9.53537 + 3.59644I$
$u = 1.341290 + 0.078014I$	$4.79218 + 2.27303I$	0
$u = 1.341290 - 0.078014I$	$4.79218 - 2.27303I$	0
$u = -0.016190 + 0.650435I$	$-4.25225 - 1.96489I$	$-6.41876 + 3.80214I$
$u = -0.016190 - 0.650435I$	$-4.25225 + 1.96489I$	$-6.41876 - 3.80214I$
$u = -1.36044$	2.36439	0
$u = -1.354250 + 0.153282I$	$-4.85572I$	0
$u = -1.354250 - 0.153282I$	$4.85572I$	0
$u = 0.168296 + 0.562791I$	$-4.79218 + 2.27303I$	$-7.53878 - 5.43774I$
$u = 0.168296 - 0.562791I$	$-4.79218 - 2.27303I$	$-7.53878 + 5.43774I$
$u = -1.41500 + 0.15765I$	$-4.77953I$	0
$u = -1.41500 - 0.15765I$	$4.77953I$	0
$u = -1.43315 + 0.25654I$	$-1.34747 - 4.36482I$	0
$u = -1.43315 - 0.25654I$	$-1.34747 + 4.36482I$	0
$u = 1.44513 + 0.18530I$	$6.07300 + 2.79125I$	0
$u = 1.44513 - 0.18530I$	$6.07300 - 2.79125I$	0
$u = 1.44230 + 0.25142I$	$5.09005 + 6.77785I$	0
$u = 1.44230 - 0.25142I$	$5.09005 - 6.77785I$	0
$u = -1.44844 + 0.25675I$	$5.83372 - 10.83810I$	0
$u = -1.44844 - 0.25675I$	$5.83372 + 10.83810I$	0
$u = -1.46054 + 0.17675I$	$7.00321 + 0.97426I$	0
$u = -1.46054 - 0.17675I$	$7.00321 - 0.97426I$	0
$u = 1.44937 + 0.26160I$	$14.3130I$	0
$u = 1.44937 - 0.26160I$	$-14.3130I$	0
$u = -1.45871 + 0.22229I$	$10.31710 - 4.99618I$	0
$u = -1.45871 - 0.22229I$	$10.31710 + 4.99618I$	0
$u = 1.46621 + 0.16916I$	$1.34747 - 4.36482I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad 1.46621 - 0.16916I$	$1.34747 + 4.36482I$	0
$u = \quad 1.46180 + 0.20937I$	$6.83305 + 1.72993I$	0
$u = \quad 1.46180 - 0.20937I$	$6.83305 - 1.72993I$	0
$u = \quad 1.45834 + 0.23374I$	$6.47567 + 8.30107I$	0
$u = \quad 1.45834 - 0.23374I$	$6.47567 - 8.30107I$	0
$u = \quad 0.454374$	-2.97683	0.0821020
$u = -0.205634 + 0.349087I$	$-\ 0.817350I$	$0. + 8.35638I$
$u = -0.205634 - 0.349087I$	$0.817350I$	$0. - 8.35638I$

II. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_6	$u^{68} - 11u^{67} + \cdots - 1692u + 113$
c_2, c_3, c_7	$u^{68} + u^{67} + \cdots + 3u^2 + 1$
c_4, c_5, c_{11}	$u^{68} - u^{67} + \cdots + 3u^2 + 1$
c_8	$u^{68} - 3u^{67} + \cdots + 630u - 369$
c_9, c_{12}	$u^{68} + 11u^{67} + \cdots + 1692u + 113$
c_{10}	$u^{68} + 3u^{67} + \cdots - 630u - 369$

III. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_6, c_9 c_{12}	$y^{68} + 49y^{67} + \cdots + 20218y + 12769$
c_2, c_3, c_4 c_5, c_7, c_{11}	$y^{68} - 63y^{67} + \cdots + 6y + 1$
c_8, c_{10}	$y^{68} - 19y^{67} + \cdots - 2666250y + 136161$