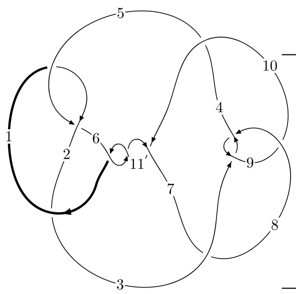
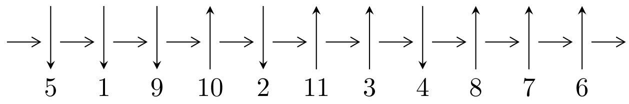
# $11a_{110}$ $(K11a_{110})$




A knot diagram[1]

**Linearized knot diagam**




**Solving Sequence**

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

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

$$I_1^u = \langle u^{48} - u^{47} + \cdots - 4u^3 + 1 \rangle$$

* 1 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 48 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. $I_1^u = \langle u^{48} - u^{47} + \cdots - 4u^3 + 1 \rangle$

**(i) Arc colorings**

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

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

$$a_5 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u^3 \\ u^5 - u^3 + u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^3 \\ -u^3 + u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} u^6 - u^4 + 1 \\ -u^6 + 2u^4 - u^2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u^{14} - 3u^{12} + 4u^{10} - u^8 + 1 \\ -u^{16} + 4u^{14} - 8u^{12} + 8u^{10} - 4u^8 - 2u^6 + 4u^4 - 2u^2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u^9 - 2u^7 + u^5 + 2u^3 - u \\ -u^9 + 3u^7 - 3u^5 + u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u^{20} - 5u^{18} + 11u^{16} - 10u^{14} - 2u^{12} + 13u^{10} - 9u^8 + 3u^4 - u^2 + 1 \\ -u^{20} + 6u^{18} - 16u^{16} + 22u^{14} - 13u^{12} - 4u^{10} + 10u^8 - 4u^6 - u^4 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^{39} + 10u^{37} + \cdots + 4u^3 - 2u \\ u^{41} - 11u^{39} + \cdots + 2u^3 + u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^{39} + 10u^{37} + \cdots + 4u^3 - 2u \\ u^{41} - 11u^{39} + \cdots + 2u^3 + u \end{pmatrix}$$

**(ii) Obstruction class** $= -1$

**(iii) Cusp Shapes** $= 4u^{47} - 56u^{45} + \cdots - 8u^2 - 2$

**(iv) u-Polynomials at the component**

| Crossings | u-Polynomials at each crossing |
|---|---|
| $c_1, c_5$ | $u^{48} + u^{47} + \cdots + 4u^3 + 1$ |
| $c_2$ | $u^{48} + 27u^{47} + \cdots + 28u^3 + 1$ |
| $c_3, c_8$ | $u^{48} - u^{47} + \cdots - 2u^4 + 1$ |
| $c_4, c_7$ | $u^{48} + u^{47} + \cdots - 44u + 17$ |
| $c_6, c_{10}, c_{11}$ | $u^{48} + 3u^{47} + \cdots + 8u + 1$ |
| $c_9$ | $u^{48} - 25u^{47} + \cdots - 4u^2 + 1$ |

**(v) Riley Polynomials at the component**

| Crossings | Riley Polynomials at each crossing |
|---|---|
| $c_1, c_5$ | $y^{48} - 27y^{47} + \cdots - 28y^3 + 1$ |
| $c_2$ | $y^{48} - 11y^{47} + \cdots + 308y^2 + 1$ |
| $c_3, c_8$ | $y^{48} + 25y^{47} + \cdots - 4y^2 + 1$ |
| $c_4, c_7$ | $y^{48} - 31y^{47} + \cdots + 2620y + 289$ |
| $c_6, c_{10}, c_{11}$ | $y^{48} + 49y^{47} + \cdots + 56y + 1$ |
| $c_9$ | $y^{48} - 3y^{47} + \cdots - 8y + 1$ |

**(vi) Complex Volumes and Cusp Shapes**

| Solutions to $I_1^u$ | $\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$ | Cusp shape |
|---|---|---|
| $u = 0.958219 + 0.143307I$ | $-1.66920 - 0.31218I$ | $-6.04929 + 0.55460I$ |
| $u = 0.958219 - 0.143307I$ | $-1.66920 + 0.31218I$ | $-6.04929 - 0.55460I$ |
| $u = 0.914661 + 0.504015I$ | $4.41403 - 0.70127I$ | $5.15173 + 2.65109I$ |
| $u = 0.914661 - 0.504015I$ | $4.41403 + 0.70127I$ | $5.15173 - 2.65109I$ |
| $u = -1.046740 + 0.068635I$ | $0.77690 - 3.72476I$ | $-1.95300 + 3.66807I$ |
| $u = -1.046740 - 0.068635I$ | $0.77690 + 3.72476I$ | $-1.95300 - 3.66807I$ |
| $u = 1.011960 + 0.286206I$ | $-2.55221 - 0.92643I$ | $-6.15695 + 0.73591I$ |
| $u = 1.011960 - 0.286206I$ | $-2.55221 + 0.92643I$ | $-6.15695 - 0.73591I$ |
| $u = -0.950614 + 0.484261I$ | $0.72805 + 4.58119I$ | $0.34102 - 6.39238I$ |
| $u = -0.950614 - 0.484261I$ | $0.72805 - 4.58119I$ | $0.34102 + 6.39238I$ |
| $u = -1.021410 + 0.380117I$ | $-1.89118 + 4.83513I$ | $-2.88338 - 8.66489I$ |
| $u = -1.021410 - 0.380117I$ | $-1.89118 - 4.83513I$ | $-2.88338 + 8.66489I$ |
| $u = 0.963622 + 0.510991I$ | $3.78897 - 9.13187I$ | $3.52711 + 9.35882I$ |
| $u = 0.963622 - 0.510991I$ | $3.78897 + 9.13187I$ | $3.52711 - 9.35882I$ |
| $u = 0.080810 + 0.850812I$ | $-0.65137 + 8.58815I$ | $2.17259 - 5.82135I$ |
| $u = 0.080810 - 0.850812I$ | $-0.65137 - 8.58815I$ | $2.17259 + 5.82135I$ |
| $u = -0.013057 + 0.852192I$ | $-5.99169 - 2.35954I$ | $-2.55512 + 3.34973I$ |
| $u = -0.013057 - 0.852192I$ | $-5.99169 + 2.35954I$ | $-2.55512 - 3.34973I$ |
| $u = -0.065516 + 0.840970I$ | $-3.41452 - 3.72023I$ | $-1.09842 + 2.42491I$ |
| $u = -0.065516 - 0.840970I$ | $-3.41452 + 3.72023I$ | $-1.09842 - 2.42491I$ |
| $u = -0.757474 + 0.366588I$ | $1.28610 + 1.69703I$ | $6.44180 - 4.95354I$ |
| $u = -0.757474 - 0.366588I$ | $1.28610 - 1.69703I$ | $6.44180 + 4.95354I$ |
| $u = 0.079356 + 0.807965I$ | $0.763972 + 0.284532I$ | $4.14710 + 0.31000I$ |
| $u = 0.079356 - 0.807965I$ | $0.763972 - 0.284532I$ | $4.14710 - 0.31000I$ |
| $u = 0.546437 + 0.541746I$ | $5.44153 - 3.53716I$ | $7.56794 + 3.98603I$ |
| $u = 0.546437 - 0.541746I$ | $5.44153 + 3.53716I$ | $7.56794 - 3.98603I$ |
| $u = 0.468200 + 0.569910I$ | $5.17049 + 4.81347I$ | $6.85493 - 3.77558I$ |
| $u = 0.468200 - 0.569910I$ | $5.17049 - 4.81347I$ | $6.85493 + 3.77558I$ |
| $u = -1.214630 + 0.420476I$ | $-3.06688 + 3.96905I$ | 0 |
| $u = -1.214630 - 0.420476I$ | $-3.06688 - 3.96905I$ | 0 |

| Solutions to $I_1^u$ | $\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$ | Cusp shape |
|---|---|---|
| $u = -0.484203 + 0.509344I$ | $2.02079 - 0.49000I$ | $3.99733 + 0.21349I$ |
| $u = -0.484203 - 0.509344I$ | $2.02079 + 0.49000I$ | $3.99733 - 0.21349I$ |
| $u = \phantom{-}1.209970 + 0.489477I$ | $-2.57490 - 5.01368I$ | 0 |
| $u = \phantom{-}1.209970 - 0.489477I$ | $-2.57490 + 5.01368I$ | 0 |
| $u = \phantom{-}1.237110 + 0.425873I$ | $-7.33658 - 0.70647I$ | 0 |
| $u = \phantom{-}1.237110 - 0.425873I$ | $-7.33658 + 0.70647I$ | 0 |
| $u = -1.243170 + 0.416059I$ | $-4.66901 - 4.18367I$ | 0 |
| $u = -1.243170 - 0.416059I$ | $-4.66901 + 4.18367I$ | 0 |
| $u = -1.224430 + 0.490742I$ | $-6.86889 + 8.53427I$ | 0 |
| $u = -1.224430 - 0.490742I$ | $-6.86889 - 8.53427I$ | 0 |
| $u = \phantom{-}1.240090 + 0.455194I$ | $-9.75907 - 2.28164I$ | 0 |
| $u = \phantom{-}1.240090 - 0.455194I$ | $-9.75907 + 2.28164I$ | 0 |
| $u = -1.237470 + 0.468224I$ | $-9.66500 + 7.07748I$ | 0 |
| $u = -1.237470 - 0.468224I$ | $-9.66500 - 7.07748I$ | 0 |
| $u = \phantom{-}1.225480 + 0.498822I$ | $-4.07278 - 13.47170I$ | 0 |
| $u = \phantom{-}1.225480 - 0.498822I$ | $-4.07278 + 13.47170I$ | 0 |
| $u = -0.177212 + 0.446834I$ | $0.31404 - 1.44403I$ | $2.46816 + 4.79849I$ |
| $u = -0.177212 - 0.446834I$ | $0.31404 + 1.44403I$ | $2.46816 - 4.79849I$ |

## II. u-Polynomials

| Crossings | u-Polynomials at each crossing |
|---|---|
| $c_1, c_5$ | $u^{48} + u^{47} + \cdots + 4u^3 + 1$ |
| $c_2$ | $u^{48} + 27u^{47} + \cdots + 28u^3 + 1$ |
| $c_3, c_8$ | $u^{48} - u^{47} + \cdots - 2u^4 + 1$ |
| $c_4, c_7$ | $u^{48} + u^{47} + \cdots - 44u + 17$ |
| $c_6, c_{10}, c_{11}$ | $u^{48} + 3u^{47} + \cdots + 8u + 1$ |
| $c_9$ | $u^{48} - 25u^{47} + \cdots - 4u^2 + 1$ |

## III. Riley Polynomials

| Crossings | Riley Polynomials at each crossing |
| --- | --- |
| $c_1, c_5$ | $y^{48} - 27y^{47} + \cdots - 28y^3 + 1$ |
| $c_2$ | $y^{48} - 11y^{47} + \cdots + 308y^2 + 1$ |
| $c_3, c_8$ | $y^{48} + 25y^{47} + \cdots - 4y^2 + 1$ |
| $c_4, c_7$ | $y^{48} - 31y^{47} + \cdots + 2620y + 289$ |
| $c_6, c_{10}, c_{11}$ | $y^{48} + 49y^{47} + \cdots + 56y + 1$ |
| $c_9$ | $y^{48} - 3y^{47} + \cdots - 8y + 1$ |