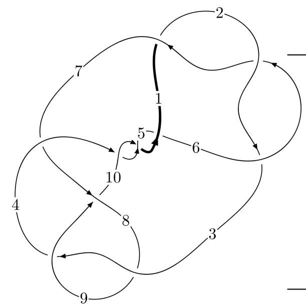
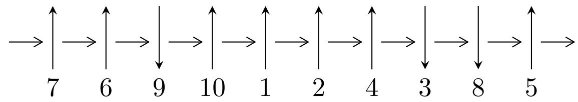
10_{23} $(K10a_{57})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^{29} - u^{28} + \cdots + u - 1 \rangle$$

* 1 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 29 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. $\boldsymbol{I_1^u = \langle u^{29} - u^{28} + \cdots + u - 1 \rangle}$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u^2 + 1 \\ -u^4 - 2u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u^3 - 2u \\ u^3 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u^6 - 3u^4 - 2u^2 + 1 \\ u^6 + 2u^4 + u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u^9 + 4u^7 + 5u^5 - 3u \\ -u^9 - 3u^7 - 3u^5 + u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^{19} + 8u^{17} + 26u^{15} + 40u^{13} + 19u^{11} - 24u^9 - 30u^7 + 9u^3 \\ -u^{19} - 7u^{17} - 20u^{15} - 27u^{13} - 11u^{11} + 13u^9 + 14u^7 - 3u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u^{25} - 10u^{23} + \cdots + 10u^3 - u \\ u^{27} + 11u^{25} + \cdots - u^3 + u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes

$= 4u^{28} - 4u^{27} + 44u^{26} - 40u^{25} + 208u^{24} - 172u^{23} + 528u^{22} - 396u^{21} + 692u^{20} - 468u^{19} + 184u^{18} - 112u^{17} - 756u^{16} + 404u^{15} - 952u^{14} + 460u^{13} - 96u^{12} + 92u^{11} + 512u^{10} - 116u^9 + 224u^8 - 80u^7 - 92u^6 - 40u^5 - 40u^4 - 4u^3 + 12u^2 + 8u + 6$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_6	$u^{29} - u^{28} + \cdots + u - 1$
c_3, c_8	$u^{29} - u^{28} + \cdots + u - 1$
c_4, c_5, c_{10}	$u^{29} + u^{28} + \cdots - 7u - 1$
c_7	$u^{29} - 3u^{28} + \cdots - u + 1$
c_9	$u^{29} + 13u^{28} + \cdots + 3u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_6	$y^{29} + 23y^{28} + \cdots + 3y - 1$
c_3, c_8	$y^{29} - 13y^{28} + \cdots + 3y - 1$
c_4, c_5, c_{10}	$y^{29} - 29y^{28} + \cdots + 19y - 1$
c_7	$y^{29} - y^{28} + \cdots + 31y - 1$
c_9	$y^{29} + 7y^{28} + \cdots - 17y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \ \ 0.104948 + 1.063430I$	$-1.50634 + 2.08825I$	$4.67041 - 4.01921I$
$u = \ \ 0.104948 - 1.063430I$	$-1.50634 - 2.08825I$	$4.67041 + 4.01921I$
$u = \ \ 0.867318 + 0.055730I$	$6.06905 + 6.86231I$	$7.66791 - 5.15654I$
$u = \ \ 0.867318 - 0.055730I$	$6.06905 - 6.86231I$	$7.66791 + 5.15654I$
$u = -0.865828 + 0.030403I$	$7.84107 - 1.55857I$	$10.33093 + 0.38024I$
$u = -0.865828 - 0.030403I$	$7.84107 + 1.55857I$	$10.33093 - 0.38024I$
$u = \ \ 0.802035$	2.34920	4.54160
$u = \ \ 0.144820 + 1.275680I$	$-3.23997 + 2.39104I$	$2.27394 - 3.37022I$
$u = \ \ 0.144820 - 1.275680I$	$-3.23997 - 2.39104I$	$2.27394 + 3.37022I$
$u = \ \ 0.413631 + 1.222060I$	$2.47326 - 2.27350I$	$4.56508 + 1.80235I$
$u = \ \ 0.413631 - 1.222060I$	$2.47326 + 2.27350I$	$4.56508 - 1.80235I$
$u = -0.408190 + 1.247470I$	$4.07665 - 3.00599I$	$6.90218 + 3.08222I$
$u = -0.408190 - 1.247470I$	$4.07665 + 3.00599I$	$6.90218 - 3.08222I$
$u = \ \ 0.355449 + 1.278410I$	$-1.63034 + 4.16530I$	$0.22706 - 3.16142I$
$u = \ \ 0.355449 - 1.278410I$	$-1.63034 - 4.16530I$	$0.22706 + 3.16142I$
$u = -0.076147 + 1.325550I$	$-6.70958 + 0.47843I$	$-4.05109 - 0.53373I$
$u = -0.076147 - 1.325550I$	$-6.70958 - 0.47843I$	$-4.05109 + 0.53373I$
$u = -0.164926 + 1.331090I$	$-5.61619 - 6.65351I$	$-1.43843 + 7.12693I$
$u = -0.164926 - 1.331090I$	$-5.61619 + 6.65351I$	$-1.43843 - 7.12693I$
$u = -0.398344 + 1.297060I$	$3.70379 - 6.09123I$	$6.35632 + 3.37420I$
$u = -0.398344 - 1.297060I$	$3.70379 + 6.09123I$	$6.35632 - 3.37420I$
$u = \ \ 0.395776 + 1.314560I$	$1.78699 + 11.39320I$	$3.51396 - 7.74456I$
$u = \ \ 0.395776 - 1.314560I$	$1.78699 - 11.39320I$	$3.51396 + 7.74456I$
$u = -0.504557 + 0.291210I$	$-0.58407 - 4.33232I$	$4.72516 + 7.80862I$
$u = -0.504557 - 0.291210I$	$-0.58407 + 4.33232I$	$4.72516 - 7.80862I$
$u = -0.232980 + 0.458467I$	$-1.44954 + 1.50061I$	$0.980964 - 0.451451I$
$u = -0.232980 - 0.458467I$	$-1.44954 - 1.50061I$	$0.980964 + 0.451451I$
$u = \ \ 0.468013 + 0.123523I$	$1.012830 + 0.278366I$	$10.00481 - 1.83311I$
$u = \ \ 0.468013 - 0.123523I$	$1.012830 - 0.278366I$	$10.00481 + 1.83311I$

II. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_2, c_6	$u^{29} - u^{28} + \cdots + u - 1$
c_3, c_8	$u^{29} - u^{28} + \cdots + u - 1$
c_4, c_5, c_{10}	$u^{29} + u^{28} + \cdots - 7u - 1$
c_7	$u^{29} - 3u^{28} + \cdots - u + 1$
c_9	$u^{29} + 13u^{28} + \cdots + 3u + 1$

III. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_6	$y^{29} + 23y^{28} + \cdots + 3y - 1$
c_3, c_8	$y^{29} - 13y^{28} + \cdots + 3y - 1$
c_4, c_5, c_{10}	$y^{29} - 29y^{28} + \cdots + 19y - 1$
c_7	$y^{29} - y^{28} + \cdots + 31y - 1$
c_9	$y^{29} + 7y^{28} + \cdots - 17y - 1$