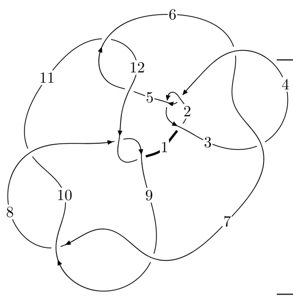
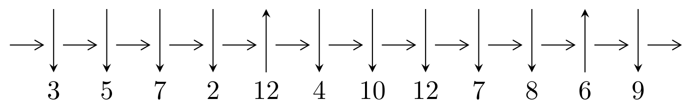
$12n_{0138}$ ($K12n_{0138}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$
\begin{aligned}
I_1^u = \langle & 1.30613 \times 10^{24} u^{22} + 1.93530 \times 10^{25} u^{21} + \cdots + 3.16864 \times 10^{26} b - 1.61340 \times 10^{26}, \\
& 1.48301 \times 10^{26} u^{22} + 2.07464 \times 10^{27} u^{21} + \cdots + 3.16864 \times 10^{26} a + 3.75365 \times 10^{28}, \\
& u^{23} + 14u^{22} + \cdots + 247u - 1 \rangle \\
I_2^u = \langle & -676a^8 - 5525a^7 + 10837a^6 - 7123a^5 - 92a^4 + 4655a^3 - 6197a^2 + 717b - 295a + 1497, \\
& a^9 + 7a^8 - 25a^7 + 34a^6 - 25a^5 + 9a^4 + 5a^3 - 6a^2 + 1,\ u - 1 \rangle \\
I_3^u = \langle & 5a^2u - 3a^2 + 12au + b - 7a + 3u - 1,\ a^3 - a^2u + a^2 + 3au + 6a + 3u + 5,\ u^2 + u - 1 \rangle \\
I_4^u = \langle & b,\ -3u^2 + a - 5u - 4,\ u^3 + u^2 - 1 \rangle
\end{aligned}
$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 41 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. $\boldsymbol{I_1^u = \langle 1.31\times 10^{24}u^{22}+1.94\times 10^{25}u^{21}+\cdots+3.17\times 10^{26}b-1.61\times 10^{26},\ 1.48\times 10^{26}u^{22}+2.07\times 10^{27}u^{21}+\cdots+3.17\times 10^{26}a+3.75\times 10^{28},\ u^{23}+14u^{22}+\cdots+247u-1\rangle}$

(i) Arc colorings

$$a_7 = \begin{pmatrix}1\\0\end{pmatrix}$$

$$a_{10} = \begin{pmatrix}0\\u\end{pmatrix}$$

$$a_8 = \begin{pmatrix}1\\u^2\end{pmatrix}$$

$$a_4 = \begin{pmatrix}-0.468025u^{22}-6.54739u^{21}+\cdots+247.949u-118.462\\-0.00412206u^{22}-0.0610765u^{21}+\cdots+2.33980u+0.509176\end{pmatrix}$$

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

$$a_3 = \begin{pmatrix}-0.472147u^{22}-6.60847u^{21}+\cdots+250.289u-117.953\\-0.00412206u^{22}-0.0610765u^{21}+\cdots+2.33980u+0.509176\end{pmatrix}$$

$$a_6 = \begin{pmatrix}0.253629u^{22}+3.54938u^{21}+\cdots-137.567u+62.4798\\8.27189\times 10^{-6}u^{22}+0.00149756u^{21}+\cdots+1.46879u-0.275118\end{pmatrix}$$

$$a_{12} = \begin{pmatrix}0.0618338u^{22}+0.867080u^{21}+\cdots-30.7615u+15.7102\\-0.00140785u^{22}-0.0182940u^{21}+\cdots-0.437254u-0.0618338\end{pmatrix}$$

$$a_5 = \begin{pmatrix}0.273382u^{22}+3.82624u^{21}+\cdots-147.561u+66.4442\\-0.000313866u^{22}-0.00313831u^{21}+\cdots+2.38335u-0.294871\end{pmatrix}$$

$$a_2 = \begin{pmatrix}-0.264797u^{22}-3.70794u^{21}+\cdots+143.659u-63.5528\\0.000313866u^{22}+0.00313831u^{21}+\cdots-2.38335u+0.294871\end{pmatrix}$$

$$a_9 = \begin{pmatrix}u\\u\end{pmatrix}$$

$$a_1 = \begin{pmatrix}0.0632652u^{22}+0.887387u^{21}+\cdots-30.6962u+15.7102\\0.0000236385u^{22}+0.00201246u^{21}+\cdots-0.372026u-0.0618418\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{12439096516079350509692}{1237751551862707466683597}u^{22}+\frac{24959142431741094135677015}{158432198638426555735500416}u^{21}+\cdots+\frac{1416393727615768311794426071}{158432198638426555735500416}u-\frac{1337939601650771137272682937}{158432198638426555735500416}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{23}+23u^{22}+\cdots+12783u+1$
c_2, c_4	$u^{23}-7u^{22}+\cdots-113u-1$
c_3, c_6	$u^{23}-4u^{22}+\cdots-36u+8$
c_5, c_{11}	$u^{23}+3u^{22}+\cdots-32u-64$
c_7, c_9, c_{10}	$u^{23}-14u^{22}+\cdots+247u+1$
c_8, c_{12}	$u^{23}+5u^{22}+\cdots+4608u-512$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{23} - 39y^{22} + \cdots + 163240279y - 1$
c_2, c_4	$y^{23} - 23y^{22} + \cdots + 12783y - 1$
c_3, c_6	$y^{23} - 12y^{22} + \cdots + 7568y - 64$
c_5, c_{11}	$y^{23} + 37y^{22} + \cdots + 234496y - 4096$
c_7, c_9, c_{10}	$y^{23} - 48y^{22} + \cdots + 59963y - 1$
c_8, c_{12}	$y^{23} - 111y^{22} + \cdots + 71041024y - 262144$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.970382$ $a = 8.07238$ $b = 0.439625$	-2.87501	-99.4720
$u = -0.718687 + 0.638413I$ $a = 0.403992 - 0.145437I$ $b = 0.282905 - 0.561433I$	$1.45854 + 3.25209I$	$-3.51442 - 11.82565I$
$u = -0.718687 - 0.638413I$ $a = 0.403992 + 0.145437I$ $b = 0.282905 + 0.561433I$	$1.45854 - 3.25209I$	$-3.51442 + 11.82565I$
$u = 0.820787 + 0.297606I$ $a = 3.29844 - 2.74934I$ $b = 0.271589 + 0.441556I$	$-2.85899 - 0.09109I$	$-11.2448 + 8.7640I$
$u = 0.820787 - 0.297606I$ $a = 3.29844 + 2.74934I$ $b = 0.271589 - 0.441556I$	$-2.85899 + 0.09109I$	$-11.2448 - 8.7640I$
$u = -0.989873 + 0.547667I$ $a = -0.262757 - 0.269042I$ $b = -0.904186 - 1.051940I$	$-5.12106 - 6.15902I$	$-10.50715 + 1.63362I$
$u = -0.989873 - 0.547667I$ $a = -0.262757 + 0.269042I$ $b = -0.904186 + 1.051940I$	$-5.12106 + 6.15902I$	$-10.50715 - 1.63362I$
$u = 0.736463$ $a = -0.794473$ $b = -0.0940545$	-1.10354	-8.74790
$u = -0.077756 + 0.538901I$ $a = -0.928505 + 0.171334I$ $b = 0.810706 + 0.505931I$	$-0.87687 - 1.52898I$	$-6.60742 + 3.54271I$
$u = -0.077756 - 0.538901I$ $a = -0.928505 - 0.171334I$ $b = 0.810706 - 0.505931I$	$-0.87687 + 1.52898I$	$-6.60742 - 3.54271I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.404196 + 0.182896I$ $a = 0.32709 + 2.82080I$ $b = 0.273102 - 1.253150I$	$2.20419 + 2.68521I$	$2.70136 + 6.44368I$
$u = 0.404196 - 0.182896I$ $a = 0.32709 - 2.82080I$ $b = 0.273102 + 1.253150I$	$2.20419 - 2.68521I$	$2.70136 - 6.44368I$
$u = -1.63114$ $a = -1.85070$ $b = -0.603575$	-9.92701	35.8110
$u = 0.00408400$ $a = -117.446$ $b = 0.518673$	-1.19404	-8.40790
$u = -1.89245 + 0.70982I$ $a = -1.043110 - 0.396575I$ $b = -1.16222 + 1.51464I$	$15.7088 + 13.9110I$	$-11.35191 - 5.40734I$
$u = -1.89245 - 0.70982I$ $a = -1.043110 + 0.396575I$ $b = -1.16222 - 1.51464I$	$15.7088 - 13.9110I$	$-11.35191 + 5.40734I$
$u = -2.26833 + 0.53777I$ $a = 0.840120 + 0.152223I$ $b = 1.41200 - 1.76863I$	$19.7178 + 6.1351I$	$-10.22986 - 1.96379I$
$u = -2.26833 - 0.53777I$ $a = 0.840120 - 0.152223I$ $b = 1.41200 + 1.76863I$	$19.7178 - 6.1351I$	$-10.22986 + 1.96379I$
$u = 1.99410 + 1.87801I$ $a = -0.410446 + 0.386878I$ $b = -2.39957 - 0.70874I$	$-14.2988 - 3.5584I$	0
$u = 1.99410 - 1.87801I$ $a = -0.410446 - 0.386878I$ $b = -2.39957 + 0.70874I$	$-14.2988 + 3.5584I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-2.78866+0.30349I$ $a=-0.537585-0.114355I$ $b=-1.97498-1.71262I$	$14.2364+2.5672I$	0
$u=-2.78866-0.30349I$ $a=-0.537585+0.114355I$ $b=-1.97498+1.71262I$	$14.2364-2.5672I$	0
$u=-3.04646$ $a=\ \ 0.644751$ $b=\ \ 2.52063$	18.9120	0

II. $I_2^u = \langle -676a^8+717b+\cdots-295a+1497,\ a^9+7a^8+\cdots-6a^2+1,\ u-1\rangle$

(i) Arc colorings

$$a_7 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}0\\1\end{pmatrix}$$
$$a_8 = \begin{pmatrix}1\\1\end{pmatrix}$$
$$a_4 = \begin{pmatrix}a\\0.942817a^8+7.70572a^7+\cdots+0.411437a-2.08787\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}-1\\0\end{pmatrix}$$
$$a_3 = \begin{pmatrix}0.942817a^8+7.70572a^7+\cdots+1.41144a-2.08787\\0.942817a^8+7.70572a^7+\cdots+0.411437a-2.08787\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-1.10600a^8-8.45607a^7+\cdots+2.08787a+1.94282\\-2.28870a^8-17.4045a^7+\cdots+4.19107a+2.41004\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}-1.53556a^8-11.8131a^7+\cdots+2.37378a+0.0794979\\-1.53556a^8-11.8131a^7+\cdots+2.37378a+0.0794979\end{pmatrix}$$
$$a_5 = \begin{pmatrix}2.51743a^8+18.9149a^7+\cdots-5.17015a-3.72524\\1.33473a^8+9.96653a^7+\cdots-3.06695a-3.25802\end{pmatrix}$$
$$a_2 = \begin{pmatrix}2.34589a^8+17.6987a^7+\cdots-4.60251a-4.32218\\1.33473a^8+9.96653a^7+\cdots-3.06695a-3.25802\end{pmatrix}$$
$$a_9 = \begin{pmatrix}1\\1\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-1.53556a^8-11.8131a^7+\cdots+2.37378a+0.0794979\\-1.53556a^8-11.8131a^7+\cdots+2.37378a+0.0794979\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes
$= \frac{10493}{717}a^8+\frac{26713}{239}a^7-\frac{210605}{717}a^6+\frac{75659}{239}a^5-\frac{133631}{717}a^4+\frac{11474}{239}a^3+\frac{50845}{717}a^2-\frac{6563}{239}a-\frac{6150}{239}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^9 - 5u^8 + 12u^7 - 15u^6 + 9u^5 + u^4 - 4u^3 + 2u^2 + u - 1$
c_2	$u^9 + u^8 - 2u^7 - 3u^6 + u^5 + 3u^4 + 2u^3 - u - 1$
c_3	$u^9 + u^8 + 2u^7 + u^6 + 3u^5 + u^4 + 2u^3 + u - 1$
c_4	$u^9 - u^8 - 2u^7 + 3u^6 + u^5 - 3u^4 + 2u^3 - u + 1$
c_5	$u^9 - 3u^8 + 8u^7 - 13u^6 + 17u^5 - 17u^4 + 12u^3 - 6u^2 + u + 1$
c_6	$u^9 - u^8 + 2u^7 - u^6 + 3u^5 - u^4 + 2u^3 + u + 1$
c_7	$(u-1)^9$
c_8, c_{12}	u^9
c_9, c_{10}	$(u+1)^9$
c_{11}	$u^9 + 3u^8 + 8u^7 + 13u^6 + 17u^5 + 17u^4 + 12u^3 + 6u^2 + u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^9 - y^8 + 12y^7 - 7y^6 + 37y^5 + y^4 - 10y^2 + 5y - 1$
c_2, c_4	$y^9 - 5y^8 + 12y^7 - 15y^6 + 9y^5 + y^4 - 4y^3 + 2y^2 + y - 1$
c_3, c_6	$y^9 + 3y^8 + 8y^7 + 13y^6 + 17y^5 + 17y^4 + 12y^3 + 6y^2 + y - 1$
c_5, c_{11}	$y^9 + 7y^8 + 20y^7 + 25y^6 + 5y^5 - 15y^4 + 22y^2 + 13y - 1$
c_7, c_9, c_{10}	$(y-1)^9$
c_8, c_{12}	y^9

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = 0.162031 + 0.927542I$ $b = -0.140343 + 0.966856I$	$0.13850 + 2.09337I$	$-6.65973 - 4.50528I$
$u = 1.00000$ $a = 0.162031 - 0.927542I$ $b = -0.140343 - 0.966856I$	$0.13850 - 2.09337I$	$-6.65973 + 4.50528I$
$u = 1.00000$ $a = 0.990590 + 0.515152I$ $b = 0.796005 - 0.733148I$	$-6.01628 - 1.33617I$	$-13.00050 + 1.13735I$
$u = 1.00000$ $a = 0.990590 - 0.515152I$ $b = 0.796005 + 0.733148I$	$-6.01628 + 1.33617I$	$-13.00050 - 1.13735I$
$u = 1.00000$ $a = 0.702315 + 0.150499I$ $b = 0.728966 + 0.986295I$	$-5.24306 - 7.08493I$	$-11.6081 + 10.4867I$
$u = 1.00000$ $a = 0.702315 - 0.150499I$ $b = 0.728966 - 0.986295I$	$-5.24306 + 7.08493I$	$-11.6081 - 10.4867I$
$u = 1.00000$ $a = -0.405386 + 0.113252I$ $b = -0.628449 - 0.875112I$	$-2.26187 - 2.45442I$	$-9.69685 + 4.13179I$
$u = 1.00000$ $a = -0.405386 - 0.113252I$ $b = -0.628449 + 0.875112I$	$-2.26187 + 2.45442I$	$-9.69685 - 4.13179I$
$u = 1.00000$ $a = -9.89910$ $b = -0.512358$	-2.84338	193.930

III. $I^u_3 =$
$\langle 5a^2u-3a^2+12au+b-7a+3u-1,\ a^3-a^2u+a^2+3au+6a+3u+5,\ u^2+u-1\rangle$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ -u+1 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} a \\ -5a^2u+3a^2-12au+7a-3u+1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u \\ -u+1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -5a^2u+3a^2-12au+8a-3u+1 \\ -5a^2u+3a^2-12au+7a-3u+1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -a^2u+a^2-3au+2a-u+1 \\ -2a^2u+a^2-5au+3a-2u+1 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -u \\ -u+1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -a^2u+a^2-3au+2a-u+1 \\ -2a^2u+a^2-5au+3a-2u+1 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -3a^2u+2a^2-8au+5a-3u \\ -2a^2u+a^2-5au+3a-2u+1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 17a^2u-9a^2+24au-10a+3u-18$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_3	$(u^3 - u^2 + 2u - 1)^2$
c_2	$(u^3 + u^2 - 1)^2$
c_4	$(u^3 - u^2 + 1)^2$
c_5, c_{11}	u^6
c_6	$(u^3 + u^2 + 2u + 1)^2$
c_7, c_8	$(u^2 + u - 1)^3$
c_9, c_{10}, c_{12}	$(u^2 - u - 1)^3$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_6	$(y^3 + 3y^2 + 2y - 1)^2$
c_2, c_4	$(y^3 - y^2 + 2y - 1)^2$
c_5, c_{11}	y^6
c_7, c_8, c_9 c_{10}, c_{12}	$(y^2 - 3y + 1)^3$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.618034$ $a = -0.832857$ $b = -0.569840$	-2.10041	-19.1260
$u = 0.618034$ $a = 0.22545 + 2.85986I$ $b = -0.215080 - 1.307140I$	$2.03717 - 2.82812I$	$-27.3018 + 15.7639I$
$u = 0.618034$ $a = 0.22545 - 2.85986I$ $b = -0.215080 + 1.307140I$	$2.03717 + 2.82812I$	$-27.3018 - 15.7639I$
$u = -1.61803$ $a = -0.255488 + 0.062996I$ $b = -0.215080 + 1.307140I$	$-5.85852 + 2.82812I$	$-12.61597 - 1.90115I$
$u = -1.61803$ $a = -0.255488 - 0.062996I$ $b = -0.215080 - 1.307140I$	$-5.85852 - 2.82812I$	$-12.61597 + 1.90115I$
$u = -1.61803$ $a = -2.10706$ $b = -0.569840$	-9.99610	-82.0390

IV. $I_4^u = \langle b,\ -3u^2 + a - 5u - 4,\ u^3 + u^2 - 1\rangle$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 3u^2 + 5u + 4 \\ 0 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} 3u^2 + 5u + 4 \\ 0 \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} u^2 - 1 \\ u^2 + u - 1 \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} 5u^2 + 5u + 2 \\ 2u^2 + u - 2 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u \\ u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 2u^2 - 2 \\ 2u^2 + u - 2 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 21u^2 + 45u + 27$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2	$(u-1)^3$
c_3, c_6	u^3
c_4	$(u+1)^3$
c_5	u^3+3u^2+2u-1
c_7	u^3+u^2-1
c_8	u^3-u^2+2u-1
c_9, c_{10}	u^3-u^2+1
c_{11}	u^3-3u^2+2u+1
c_{12}	u^3+u^2+2u+1

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^3$
c_3, c_6	y^3
c_5, c_{11}	$y^3 - 5y^2 + 10y - 1$
c_7, c_9, c_{10}	$y^3 - y^2 + 2y - 1$
c_8, c_{12}	$y^3 + 3y^2 + 2y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.877439 + 0.744862I$ $a = 0.258045 - 0.197115I$ $b = 0$	$1.37919 + 2.82812I$	$-7.96807 + 6.06881I$
$u = -0.877439 - 0.744862I$ $a = 0.258045 + 0.197115I$ $b = 0$	$1.37919 - 2.82812I$	$-7.96807 - 6.06881I$
$u = 0.754878$ $a = 9.48391$ $b = 0$	-2.75839	72.9360

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u-1)^3(u^3-u^2+2u-1)^2$ $\cdot(u^9-5u^8+12u^7-15u^6+9u^5+u^4-4u^3+2u^2+u-1)$ $\cdot(u^{23}+23u^{22}+\cdots+12783u+1)$
c_2	$(u-1)^3(u^3+u^2-1)^2(u^9+u^8-2u^7-3u^6+u^5+3u^4+2u^3-u-1)$ $\cdot(u^{23}-7u^{22}+\cdots-113u-1)$
c_3	$u^3(u^3-u^2+2u-1)^2(u^9+u^8+2u^7+u^6+3u^5+u^4+2u^3+u-1)$ $\cdot(u^{23}-4u^{22}+\cdots-36u+8)$
c_4	$(u+1)^3(u^3-u^2+1)^2(u^9-u^8-2u^7+3u^6+u^5-3u^4+2u^3-u+1)$ $\cdot(u^{23}-7u^{22}+\cdots-113u-1)$
c_5	$u^6(u^3+3u^2+2u-1)$ $\cdot(u^9-3u^8+8u^7-13u^6+17u^5-17u^4+12u^3-6u^2+u+1)$ $\cdot(u^{23}+3u^{22}+\cdots-32u-64)$
c_6	$u^3(u^3+u^2+2u+1)^2(u^9-u^8+2u^7-u^6+3u^5-u^4+2u^3+u+1)$ $\cdot(u^{23}-4u^{22}+\cdots-36u+8)$
c_7	$((u-1)^9)(u^2+u-1)^3(u^3+u^2-1)(u^{23}-14u^{22}+\cdots+247u+1)$
c_8	$u^9(u^2+u-1)^3(u^3-u^2+2u-1)(u^{23}+5u^{22}+\cdots+4608u-512)$
c_9, c_{10}	$((u+1)^9)(u^2-u-1)^3(u^3-u^2+1)(u^{23}-14u^{22}+\cdots+247u+1)$
c_{11}	$u^6(u^3-3u^2+2u+1)$ $\cdot(u^9+3u^8+8u^7+13u^6+17u^5+17u^4+12u^3+6u^2+u-1)$ $\cdot(u^{23}+3u^{22}+\cdots-32u-64)$
c_{12}	$u^9(u^2-u-1)^3(u^3+u^2+2u+1)(u^{23}+5u^{22}+\cdots+4608u-512)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y-1)^3(y^3+3y^2+2y-1)^2$ $\cdot(y^9-y^8+12y^7-7y^6+37y^5+y^4-10y^2+5y-1)$ $\cdot(y^{23}-39y^{22}+\cdots+163240279y-1)$
c_2, c_4	$(y-1)^3(y^3-y^2+2y-1)^2$ $\cdot(y^9-5y^8+12y^7-15y^6+9y^5+y^4-4y^3+2y^2+y-1)$ $\cdot(y^{23}-23y^{22}+\cdots+12783y-1)$
c_3, c_6	$y^3(y^3+3y^2+2y-1)^2$ $\cdot(y^9+3y^8+8y^7+13y^6+17y^5+17y^4+12y^3+6y^2+y-1)$ $\cdot(y^{23}-12y^{22}+\cdots+7568y-64)$
c_5, c_{11}	$y^6(y^3-5y^2+10y-1)$ $\cdot(y^9+7y^8+20y^7+25y^6+5y^5-15y^4+22y^2+13y-1)$ $\cdot(y^{23}+37y^{22}+\cdots+234496y-4096)$
c_7, c_9, c_{10}	$(y-1)^9(y^2-3y+1)^3(y^3-y^2+2y-1)$ $\cdot(y^{23}-48y^{22}+\cdots+59963y-1)$
c_8, c_{12}	$y^9(y^2-3y+1)^3(y^3+3y^2+2y-1)$ $\cdot(y^{23}-111y^{22}+\cdots+71041024y-262144)$