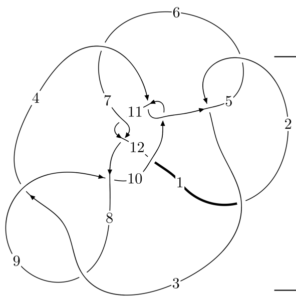
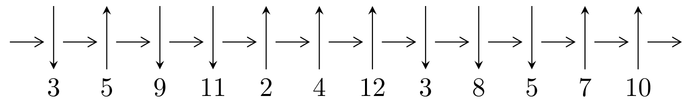
$12n_{0447}$ $(K12n_{0447})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -2.24038 \times 10^{33} u^{47} - 1.35892 \times 10^{32} u^{46} + \cdots + 2.30349 \times 10^{33} b + 1.34156 \times 10^{34},$$
$$1.73741 \times 10^{34} u^{47} - 3.00948 \times 10^{33} u^{46} + \cdots + 1.15175 \times 10^{34} a - 1.11706 \times 10^{35},\ u^{48} - u^{47} + \cdots - 2u + 5\rangle$$
$$I_2^u = \langle -u^2 a + u^3 + b + a - u,\ a^2 u^2 + a^3 + 1,\ u^4 - u^2 + 1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 60 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.

$\boldsymbol{I_1^u = \langle -2.24\times10^{33}u^{47} - 1.36\times10^{32}u^{46} + \cdots + 2.30\times10^{33}b + 1.34\times10^{34},\ 1.74\times10^{34}u^{47} - 3.01\times10^{33}u^{46} + \cdots + 1.15\times10^{34}a - 1.12\times10^{35},\ u^{48} - u^{47} + \cdots - 2u + 5\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -1.50850u^{47} + 0.261297u^{46} + \cdots + 4.48572u + 9.69889 \\ 0.972603u^{47} + 0.0589938u^{46} + \cdots - 0.659198u - 5.82402 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u^2 + 1 \\ u^2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1.16480u^{47} - 0.192201u^{46} + \cdots - 4.27812u - 2.98881 \\ 1.24721u^{47} - 0.462790u^{46} + \cdots - 6.68188u - 7.54251 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1.76087u^{47} + 0.00355222u^{46} + \cdots - 4.42873u - 9.58615 \\ 0.817561u^{47} - 0.0937876u^{46} + \cdots - 5.25658u - 6.61698 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -1.61232u^{47} + 0.251322u^{46} + \cdots + 3.62117u + 8.11692 \\ -0.821845u^{47} + 0.0692617u^{46} + \cdots + 6.06620u + 5.24702 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 1.76087u^{47} + 0.00355222u^{46} + \cdots - 4.42873u - 9.58615 \\ -0.673929u^{47} - 0.140698u^{46} + \cdots + 0.0189389u + 2.20515 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 1.78030u^{47} + 0.0974277u^{46} + \cdots - 4.61437u - 9.37957 \\ 0.553189u^{47} - 0.0489697u^{46} + \cdots - 3.34948u - 4.95558 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -2.55276u^{47} + 0.387556u^{46} + \cdots + 8.31343u + 13.4329 \\ -0.486776u^{47} + 0.132833u^{46} + \cdots + 4.46775u + 3.95207 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.327963u^{47} - 0.0729656u^{46} + \cdots - 4.23858u - 0.466106$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{48} + 53u^{47} + \cdots - 27678u + 289$
c_2, c_5	$u^{48} + 3u^{47} + \cdots - 142u + 17$
c_3, c_8	$u^{48} - u^{47} + \cdots - 2u + 5$
c_4, c_{10}	$u^{48} - u^{47} + \cdots - 8u + 1$
c_6	$u^{48} + 5u^{47} + \cdots - 7742u + 26561$
c_7, c_{11}	$u^{48} - u^{47} + \cdots - 14u + 1$
c_9	$u^{48} + 29u^{47} + \cdots - 36u + 25$
c_{12}	$u^{48} + 3u^{47} + \cdots + 4284478u + 1826857$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{48} - 111y^{47} + \cdots - 298879486y + 83521$
c_2, c_5	$y^{48} + 53y^{47} + \cdots - 27678y + 289$
c_3, c_8	$y^{48} - 29y^{47} + \cdots + 36y + 25$
c_4, c_{10}	$y^{48} + 13y^{47} + \cdots + 14y + 1$
c_6	$y^{48} + 31y^{47} + \cdots + 12208109238y + 705486721$
c_7, c_{11}	$y^{48} - 39y^{47} + \cdots - 86y + 1$
c_9	$y^{48} - 13y^{47} + \cdots - 28896y + 625$
c_{12}	$y^{48} + 41y^{47} + \cdots + 44880385612764y + 3337406498449$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.108352 + 0.991513I$ $a = -1.65182 - 0.00446I$ $b = 1.36066 + 0.53287I$	$-7.23468 - 3.54967I$	$-1.53238 + 2.33493I$
$u = -0.108352 - 0.991513I$ $a = -1.65182 + 0.00446I$ $b = 1.36066 - 0.53287I$	$-7.23468 + 3.54967I$	$-1.53238 - 2.33493I$
$u = 0.174873 + 0.981711I$ $a = 1.74425 + 0.00932I$ $b = -1.41834 + 0.60453I$	$-2.92990 + 8.29102I$	$2.36664 - 4.88040I$
$u = 0.174873 - 0.981711I$ $a = 1.74425 - 0.00932I$ $b = -1.41834 - 0.60453I$	$-2.92990 - 8.29102I$	$2.36664 + 4.88040I$
$u = 0.030174 + 0.983574I$ $a = 1.55380 - 0.03101I$ $b = -1.287640 + 0.465293I$	$-3.56945 - 1.27655I$	$1.43121 + 0.83260I$
$u = 0.030174 - 0.983574I$ $a = 1.55380 + 0.03101I$ $b = -1.287640 - 0.465293I$	$-3.56945 + 1.27655I$	$1.43121 - 0.83260I$
$u = 0.881157 + 0.424614I$ $a = -1.141540 - 0.360327I$ $b = 0.731724 - 0.770961I$	$3.03026 + 0.73910I$	$-0.764157 + 0.955160I$
$u = 0.881157 - 0.424614I$ $a = -1.141540 + 0.360327I$ $b = 0.731724 + 0.770961I$	$3.03026 - 0.73910I$	$-0.764157 - 0.955160I$
$u = -0.955184 + 0.061016I$ $a = -0.450503 + 1.000600I$ $b = -1.139020 - 0.816551I$	$-0.935829 + 0.351963I$	$-4.28024 + 0.58826I$
$u = -0.955184 - 0.061016I$ $a = -0.450503 - 1.000600I$ $b = -1.139020 + 0.816551I$	$-0.935829 - 0.351963I$	$-4.28024 - 0.58826I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.819695 + 0.488889I$ $a = 0.108560 - 0.099280I$ $b = 0.818403 - 0.513954I$	$1.72059 - 2.04540I$	$7.89567 + 4.02405I$
$u = 0.819695 - 0.488889I$ $a = 0.108560 + 0.099280I$ $b = 0.818403 + 0.513954I$	$1.72059 + 2.04540I$	$7.89567 - 4.02405I$
$u = -0.895933 + 0.584550I$ $a = 0.571984 - 0.664326I$ $b = -0.915407 - 0.330137I$	$-1.17884 + 2.22567I$	$-5.86884 - 3.07805I$
$u = -0.895933 - 0.584550I$ $a = 0.571984 + 0.664326I$ $b = -0.915407 + 0.330137I$	$-1.17884 - 2.22567I$	$-5.86884 + 3.07805I$
$u = 1.079750 + 0.223592I$ $a = 0.106506 + 0.739409I$ $b = 1.081550 - 0.643185I$	$1.98776 - 3.98499I$	$-0.58611 + 4.25564I$
$u = 1.079750 - 0.223592I$ $a = 0.106506 - 0.739409I$ $b = 1.081550 + 0.643185I$	$1.98776 + 3.98499I$	$-0.58611 - 4.25564I$
$u = 0.665759 + 0.587232I$ $a = -0.797687 - 0.156330I$ $b = 0.764248 - 0.205453I$	$2.86945 + 0.64829I$	$1.178037 - 0.420823I$
$u = 0.665759 - 0.587232I$ $a = -0.797687 + 0.156330I$ $b = 0.764248 + 0.205453I$	$2.86945 - 0.64829I$	$1.178037 + 0.420823I$
$u = 0.896239 + 0.683994I$ $a = -0.334230 - 0.804354I$ $b = 0.831578 - 0.212398I$	$2.31381 - 5.68856I$	$0.35737 + 7.14815I$
$u = 0.896239 - 0.683994I$ $a = -0.334230 + 0.804354I$ $b = 0.831578 + 0.212398I$	$2.31381 + 5.68856I$	$0.35737 - 7.14815I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.129410 + 0.115901I$ $a = 0.528176 + 0.194049I$ $b = 0.823353 - 0.308996I$	$-2.25793 + 0.22669I$	$-3.88130 + 0.48636I$
$u = -1.129410 - 0.115901I$ $a = 0.528176 - 0.194049I$ $b = 0.823353 + 0.308996I$	$-2.25793 - 0.22669I$	$-3.88130 - 0.48636I$
$u = 0.841927 + 0.080741I$ $a = 0.86370 - 1.44512I$ $b = 1.24610 + 1.12698I$	$3.83049 - 3.07305I$	$1.41041 + 1.51798I$
$u = 0.841927 - 0.080741I$ $a = 0.86370 + 1.44512I$ $b = 1.24610 - 1.12698I$	$3.83049 + 3.07305I$	$1.41041 - 1.51798I$
$u = -0.994669 + 0.588297I$ $a = 0.296924 + 0.239330I$ $b = -0.984134 - 0.447751I$	$4.59952 + 2.16567I$	$4.10775 - 1.86694I$
$u = -0.994669 - 0.588297I$ $a = 0.296924 - 0.239330I$ $b = -0.984134 + 0.447751I$	$4.59952 - 2.16567I$	$4.10775 + 1.86694I$
$u = -1.112110 + 0.405732I$ $a = 0.779825 + 1.100780I$ $b = 1.22762 - 1.41031I$	$2.60733 + 6.94232I$	$0.84068 - 7.46411I$
$u = -1.112110 - 0.405732I$ $a = 0.779825 - 1.100780I$ $b = 1.22762 + 1.41031I$	$2.60733 - 6.94232I$	$0.84068 + 7.46411I$
$u = -0.555750 + 0.577343I$ $a = -0.416557 - 0.803655I$ $b = -0.515683 - 0.475483I$	$5.85592 + 2.51809I$	$7.55361 - 3.16560I$
$u = -0.555750 - 0.577343I$ $a = -0.416557 + 0.803655I$ $b = -0.515683 + 0.475483I$	$5.85592 - 2.51809I$	$7.55361 + 3.16560I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.163420 + 0.303926I$ $a = -0.536341 + 0.659705I$ $b = -1.100960 - 0.856931I$	$-3.28855 - 4.12116I$	$-4.45892 + 6.35434I$
$u = 1.163420 - 0.303926I$ $a = -0.536341 - 0.659705I$ $b = -1.100960 + 0.856931I$	$-3.28855 + 4.12116I$	$-4.45892 - 6.35434I$
$u = 1.262720 + 0.577522I$ $a = 0.268798 + 1.336830I$ $b = -2.09613 - 0.86670I$	$-6.2609 - 13.9095I$	0
$u = 1.262720 - 0.577522I$ $a = 0.268798 - 1.336830I$ $b = -2.09613 + 0.86670I$	$-6.2609 + 13.9095I$	0
$u = -1.343520 + 0.367319I$ $a = 0.348682 - 1.226170I$ $b = -1.204320 + 0.348043I$	$-7.84517 - 3.63200I$	0
$u = -1.343520 - 0.367319I$ $a = 0.348682 + 1.226170I$ $b = -1.204320 - 0.348043I$	$-7.84517 + 3.63200I$	0
$u = 1.304590 + 0.505937I$ $a = 0.147430 + 1.094530I$ $b = -1.88535 - 0.79417I$	$-7.51956 - 4.03416I$	0
$u = 1.304590 - 0.505937I$ $a = 0.147430 - 1.094530I$ $b = -1.88535 + 0.79417I$	$-7.51956 + 4.03416I$	0
$u = -1.318780 + 0.470886I$ $a = 0.389956 - 1.214920I$ $b = -1.162380 + 0.271439I$	$-7.78759 + 6.42660I$	0
$u = -1.318780 - 0.470886I$ $a = 0.389956 + 1.214920I$ $b = -1.162380 - 0.271439I$	$-7.78759 - 6.42660I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.288130 + 0.550367I$ $a = -0.228557 + 1.218180I$ $b = 2.00350 - 0.82275I$	$-10.8644 + 9.0813I$	0
$u = -1.288130 - 0.550367I$ $a = -0.228557 - 1.218180I$ $b = 2.00350 + 0.82275I$	$-10.8644 - 9.0813I$	0
$u = 1.340310 + 0.422305I$ $a = -0.370934 - 1.220450I$ $b = 1.180220 + 0.312167I$	$-11.84160 - 1.40433I$	0
$u = 1.340310 - 0.422305I$ $a = -0.370934 + 1.220450I$ $b = 1.180220 - 0.312167I$	$-11.84160 + 1.40433I$	0
$u = -0.222716 + 0.468775I$ $a = -2.01359 - 1.24143I$ $b = 0.560309 + 1.188780I$	$5.14299 - 3.26209I$	$6.73158 + 4.68534I$
$u = -0.222716 - 0.468775I$ $a = -2.01359 + 1.24143I$ $b = 0.560309 - 1.188780I$	$5.14299 + 3.26209I$	$6.73158 - 4.68534I$
$u = -0.036037 + 0.440473I$ $a = 0.933153 - 0.958140I$ $b = -0.419907 + 0.597866I$	$0.077905 + 1.136720I$	$0.96258 - 6.02333I$
$u = -0.036037 - 0.440473I$ $a = 0.933153 + 0.958140I$ $b = -0.419907 - 0.597866I$	$0.077905 - 1.136720I$	$0.96258 + 6.02333I$

II. $I_2^u = \langle -u^2a + u^3 + b + a - u,\ a^2u^2 + a^3 + 1,\ u^4 - u^2 + 1\rangle$

(i) Arc colorings

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

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} a \\ u^2a - u^3 - a + u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u^2 + 1 \\ u^2 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -u^3a - u^2 + 1 \\ au \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -a^2u \\ -u^3a^2 + a^2u - a + u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -a^2u^2 + a^2 - u^2 + a \\ a^2u^2 + a^2u - u^3 - a + u + 1 \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} u^3a^2 - 2a^2u - u^2a + u^3 \\ -u^3a^2 + a^2u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} u^3a^2 - a^2u^2 - u^2a + a^2 - u^2 + 2a + u \\ a^2u^2 + u^2a - a + 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4u^2a + 4u^2 - 4a$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^3 - u^2 + 2u - 1)^4$
c_2, c_5	$(u^6 + u^4 + 2u^2 + 1)^2$
c_3, c_8	$(u^4 - u^2 + 1)^3$
c_4, c_{10}	$(u^2 + 1)^6$
c_6	$u^{12} - 8u^{11} + \cdots - 40u + 25$
c_7, c_{11}	$(u^6 - 3u^4 + 2u^2 + 1)^2$
c_9	$(u^2 + u + 1)^6$
c_{12}	$u^{12} + 4u^{11} + \cdots - 90u + 25$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^3 + 3y^2 + 2y - 1)^4$
c_2, c_5	$(y^3 + y^2 + 2y + 1)^4$
c_3, c_8	$(y^2 - y + 1)^6$
c_4, c_{10}	$(y + 1)^{12}$
c_6	$y^{12} + 6y^{11} + \cdots + 2100y + 625$
c_7, c_{11}	$(y^3 - 3y^2 + 2y + 1)^4$
c_9	$(y^2 + y + 1)^6$
c_{12}	$y^{12} - 30y^{10} + \cdots - 4050y + 625$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.866025 + 0.500000I$ $a = -1.083790 - 0.387453I$ $b = 1.74346 - 1.24486I$	$4.66906 + 0.79824I$	$5.50976 + 0.48465I$
$u = 0.866025 + 0.500000I$ $a = 0.206350 - 1.132320I$ $b = 1.74346 + 0.24486I$	$4.66906 - 4.85801I$	$5.50976 + 6.44355I$
$u = 0.866025 + 0.500000I$ $a = 0.377439 + 0.653743I$ $b = 0.111148 - 0.500000I$	$0.53148 - 2.02988I$	$-1.01951 + 3.46410I$
$u = 0.866025 - 0.500000I$ $a = -1.083790 + 0.387453I$ $b = 1.74346 + 1.24486I$	$4.66906 - 0.79824I$	$5.50976 - 0.48465I$
$u = 0.866025 - 0.500000I$ $a = 0.206350 + 1.132320I$ $b = 1.74346 - 0.24486I$	$4.66906 + 4.85801I$	$5.50976 - 6.44355I$
$u = 0.866025 - 0.500000I$ $a = 0.377439 - 0.653743I$ $b = 0.111148 + 0.500000I$	$0.53148 + 2.02988I$	$-1.01951 - 3.46410I$
$u = -0.866025 + 0.500000I$ $a = -1.083790 + 0.387453I$ $b = 0.011413 + 0.244862I$	$4.66906 - 0.79824I$	$5.50976 - 0.48465I$
$u = -0.866025 + 0.500000I$ $a = 0.206350 + 1.132320I$ $b = 0.011413 - 1.244860I$	$4.66906 + 4.85801I$	$5.50976 - 6.44355I$
$u = -0.866025 + 0.500000I$ $a = 0.377439 - 0.653743I$ $b = -1.62090 - 0.50000I$	$0.53148 + 2.02988I$	$-1.01951 - 3.46410I$
$u = -0.866025 - 0.500000I$ $a = -1.083790 - 0.387453I$ $b = 0.011413 - 0.244862I$	$4.66906 + 0.79824I$	$5.50976 + 0.48465I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.866025 - 0.500000I$ $a = 0.206350 - 1.132320I$ $b = 0.011413 + 1.244860I$	$4.66906 - 4.85801I$	$5.50976 + 6.44355I$
$u = -0.866025 - 0.500000I$ $a = 0.377439 + 0.653743I$ $b = -1.62090 + 0.50000I$	$0.53148 - 2.02988I$	$-1.01951 + 3.46410I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^3-u^2+2u-1)^4)(u^{48}+53u^{47}+\cdots-27678u+289)$
c_2, c_5	$((u^6+u^4+2u^2+1)^2)(u^{48}+3u^{47}+\cdots-142u+17)$
c_3, c_8	$((u^4-u^2+1)^3)(u^{48}-u^{47}+\cdots-2u+5)$
c_4, c_{10}	$((u^2+1)^6)(u^{48}-u^{47}+\cdots-8u+1)$
c_6	$(u^{12}-8u^{11}+\cdots-40u+25)(u^{48}+5u^{47}+\cdots-7742u+26561)$
c_7, c_{11}	$((u^6-3u^4+2u^2+1)^2)(u^{48}-u^{47}+\cdots-14u+1)$
c_9	$((u^2+u+1)^6)(u^{48}+29u^{47}+\cdots-36u+25)$
c_{12}	$(u^{12}+4u^{11}+\cdots-90u+25)$ $\cdot(u^{48}+3u^{47}+\cdots+4284478u+1826857)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^3+3y^2+2y-1)^4)(y^{48}-111y^{47}+\cdots-2.98879\times 10^8 y+83521)$
c_2, c_5	$((y^3+y^2+2y+1)^4)(y^{48}+53y^{47}+\cdots-27678y+289)$
c_3, c_8	$((y^2-y+1)^6)(y^{48}-29y^{47}+\cdots+36y+25)$
c_4, c_{10}	$((y+1)^{12})(y^{48}+13y^{47}+\cdots+14y+1)$
c_6	$(y^{12}+6y^{11}+\cdots+2100y+625)$ $\cdot(y^{48}+31y^{47}+\cdots+12208109238y+705486721)$
c_7, c_{11}	$((y^3-3y^2+2y+1)^4)(y^{48}-39y^{47}+\cdots-86y+1)$
c_9	$((y^2+y+1)^6)(y^{48}-13y^{47}+\cdots-28896y+625)$
c_{12}	$(y^{12}-30y^{10}+\cdots-4050y+625)$ $\cdot(y^{48}+41y^{47}+\cdots+44880385612764y+3337406498449)$