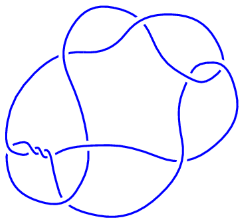
# $11a_{210}$ $(K11a_{210})$



[1]

**Arc Sequences**

| ↑ | ↓ | ↑ | ↑ | ↓ | ↑ | ↓ | ↓ | ↑ | ↑ | ↓ |
|---|---|---|---|---|---|---|---|---|---|---|
| 7 | 1 | 11 | 10 | 8 | 2 | 6 | 3 | 5 | 4 | 9 |

**Solving Sequence**

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

**Representation Ideals**

$$I = I_1^u$$

$$I_1^u = \langle u^{36} - u^{35} + \cdots + u^2 + 1 \rangle$$

There are 1 irreducible components with 36 representations.

[1]The knot diagram image is adapter from "C. Livingston and A. H. Moore, KnotInfo: Table of Knot Invariants, http://www.indiana.edu/ knotinfo"

## I. $I_1^u = \langle u^{36} - u^{35} + \cdots + u^2 + 1 \rangle$

**(i) Arc colorings**

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_7 = \begin{pmatrix} u \\ u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^2 + 1 \\ u^2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u^4 + u^2 + 1 \\ u^4 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^{11} - 2u^9 - 4u^7 - 4u^5 - 3u^3 \\ -u^{11} - u^9 - 2u^7 - u^5 + u^3 + u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} u^3 \\ u^5 + u^3 + u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u^{19} + 2u^{17} + 6u^{15} + 8u^{13} + 9u^{11} + 6u^9 - 4u^5 - 3u^3 \\ u^{21} + 3u^{19} + 9u^{17} + 16u^{15} + 24u^{13} + 25u^{11} + 21u^9 + 10u^7 + 3u^5 + u^3 + u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u^{35} + 4u^{33} + \cdots - 12u^7 + u^3 \\ u^{35} - u^{34} + \cdots - u^2 - 1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^{20} + 3u^{18} + 9u^{16} + 16u^{14} + 24u^{12} + 25u^{10} + 21u^8 + 10u^6 + 3u^4 + u^2 + 1 \\ u^{20} + 2u^{18} + 6u^{16} + 8u^{14} + 9u^{12} + 6u^{10} - 4u^6 - 3u^4 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^{20} + 3u^{18} + 9u^{16} + 16u^{14} + 24u^{12} + 25u^{10} + 21u^8 + 10u^6 + 3u^4 + u^2 + 1 \\ u^{20} + 2u^{18} + 6u^{16} + 8u^{14} + 9u^{12} + 6u^{10} - 4u^6 - 3u^4 \end{pmatrix}$$

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

**(iii) Cusp Shapes =unknown**

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

| Solution to $I_1^u$ | $\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$ | Cusp shape |
|---|---|---|
| $u = -0.864621 - 0.837762I$ | $5.68597 - 2.74218I$ | $3.17354 + 3.44962I$ |
| $u = -0.864621 + 0.837762I$ | $5.68597 + 2.74218I$ | $3.17354 - 3.44962I$ |
| $u = -0.848700 - 0.906287I$ | $1.85163 + 3.15004I$ | $1.82117 - 2.61659I$ |
| $u = -0.848700 + 0.906287I$ | $1.85163 - 3.15004I$ | $1.82117 + 2.61659I$ |
| $u = -0.816934 - 0.964209I$ | $5.28964 + 8.99184I$ | $2.24371 - 8.34910I$ |
| $u = -0.816934 + 0.964209I$ | $5.28964 - 8.99184I$ | $2.24371 + 8.34910I$ |
| $u = -0.794983 - 0.895936I$ | $2.43227 + 2.98822I$ | $-1.17573 - 2.50595I$ |
| $u = -0.794983 + 0.895936I$ | $2.43227 - 2.98822I$ | $-1.17573 + 2.50595I$ |
| $u = -0.628869 - 0.181121I$ | $-7.26818 - 3.72706I$ | $0.04242 + 2.40123I$ |
| $u = -0.628869 + 0.181121I$ | $-7.26818 + 3.72706I$ | $0.04242 - 2.40123I$ |
| $u = -0.433324 - 0.431478I$ | $0.721812 + 0.963189I$ | $5.72873 - 5.37633I$ |
| $u = -0.433324 + 0.431478I$ | $0.721812 - 0.963189I$ | $5.72873 + 5.37633I$ |
| $u = -0.354870 - 0.979895I$ | $-9.75368 + 7.25706I$ | $-5.64963 - 6.88942I$ |
| $u = -0.354870 + 0.979895I$ | $-9.75368 - 7.25706I$ | $-5.64963 + 6.88942I$ |
| $u = -0.331446 - 0.848238I$ | $-0.55346 + 2.03006I$ | $1.12004 - 4.04451I$ |
| $u = -0.331446 + 0.848238I$ | $-0.55346 - 2.03006I$ | $1.12004 + 4.04451I$ |
| $u = -0.165304 - 0.967098I$ | $-10.84153 - 1.55360I$ | $-8.17260 - 0.38654I$ |
| $u = -0.165304 + 0.967098I$ | $-10.84153 + 1.55360I$ | $-8.17260 + 0.38654I$ |
| $u = 0.182299 - 0.889376I$ | $-3.00780 + 0.17019I$ | $-7.29367 - 0.75206I$ |
| $u = 0.182299 + 0.889376I$ | $-3.00780 - 0.17019I$ | $-7.29367 + 0.75206I$ |
| $u = 0.353084 - 0.933340I$ | $-2.03776 - 5.19435I$ | $-3.33716 + 9.21025I$ |
| $u = 0.353084 + 0.933340I$ | $-2.03776 + 5.19435I$ | $-3.33716 - 9.21025I$ |
| $u = 0.530434 - 0.230060I$ | $0.07417 + 1.89235I$ | $3.15479 - 4.52320I$ |
| $u = 0.530434 + 0.230060I$ | $0.07417 - 1.89235I$ | $3.15479 + 4.52320I$ |
| $u = 0.584466 - 0.612192I$ | $-5.61681 - 2.13861I$ | $0.19816 + 3.36808I$ |
| $u = 0.584466 + 0.612192I$ | $-5.61681 + 2.13861I$ | $0.19816 - 3.36808I$ |
| $u = 0.726012 - 0.899380I$ | $-5.85535 - 2.75781I$ | $-2.67910 + 3.05381I$ |
| $u = 0.726012 + 0.899380I$ | $-5.85535 + 2.75781I$ | $-2.67910 - 3.05381I$ |
| $u = 0.813169 - 0.978946I$ | $-2.30348 - 11.52243I$ | $-0.68183 + 6.92390I$ |
| $u = 0.813169 + 0.978946I$ | $-2.30348 + 11.52243I$ | $-0.68183 - 6.92390I$ |

| Solution to $I_1^u$ | $\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$ | Cusp shape |
|---|---|---|
| $u = 0.821327 - 0.945037I$ | $6.48998 - 5.15115I$ | $5.34177 + 2.63886I$ |
| $u = 0.821327 + 0.945037I$ | $6.48998 + 5.15115I$ | $5.34177 - 2.63886I$ |
| $u = 0.853521 - 0.859582I$ | $6.75859 - 1.08065I$ | $5.91547 + 2.62482I$ |
| $u = 0.853521 + 0.859582I$ | $6.75859 + 1.08065I$ | $5.91547 - 2.62482I$ |
| $u = 0.874739 - 0.820043I$ | $-1.80521 + 5.25682I$ | $0.24993 - 2.11060I$ |
| $u = 0.874739 + 0.820043I$ | $-1.80521 - 5.25682I$ | $0.24993 + 2.11060I$ |

## II. u-Polynomials

| Crossings | u-Polynomials at each crossings |
|---|---|
| $c_1, c_6$ | $(u^{36} + u^{35} + \cdots + u^2 + 1)$ |
| $c_2, c_5, c_7$ | $(u^{36} + 9u^{35} + \cdots + 2u + 1)$ |
| $c_3, c_4, c_9$ $c_{10}$ | $(u^{36} + u^{35} + \cdots + 2u + 1)$ |
| $c_8$ | $(u^{36} + u^{35} + \cdots + 24u + 5)$ |
| $c_{11}$ | $(u^{36} + 9u^{35} + \cdots - 8u + 1)$ |

## III. Riley Polynomials

| Crossings | Riley Polynomials at each crossings |
|---|---|
| $c_1, c_6$ | $(y^{36} + 9y^{35} + \cdots + 2y + 1)$ |
| $c_2, c_5, c_7$ | $(y^{36} + 37y^{35} + \cdots + 18y + 1)$ |
| $c_3, c_4, c_9$ $c_{10}$ | $(y^{36} + 41y^{35} + \cdots + 2y + 1)$ |
| $c_8$ | $(y^{36} - 3y^{35} + \cdots - 6y + 25)$ |
| $c_{11}$ | $(y^{36} + y^{35} + \cdots - 30y + 1)$ |