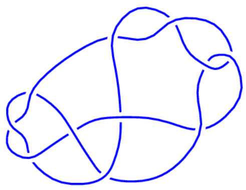
# $11a_{205}$ ($K11a_{205}$)



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**Arc Sequences**

$\rightarrow \uparrow \rightarrow \downarrow \rightarrow \uparrow \rightarrow \uparrow \rightarrow \downarrow \rightarrow \uparrow \rightarrow \downarrow \rightarrow \downarrow \rightarrow \uparrow \rightarrow \uparrow \rightarrow \downarrow \rightarrow$

7 1 11 10 8 2 6 3 4 5 9

**Solving Sequence**

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

**Representation Ideals**

$$I = I_1^u$$

$$I_1^u = \langle u^{45} - u^{44} + \cdots + u + 1 \rangle$$

There are 1 irreducible components with 45 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. $I_1^u = \langle u^{45} - u^{44} + \cdots + u + 1 \rangle$

**(i) Arc colorings**

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^2 + 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u^4 + u^2 + 1 \\ u^4 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u^{11} - 2u^9 - 4u^7 - 4u^5 - 3u^3 \\ -u^{11} - u^9 - 2u^7 - u^5 + u^3 + u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u^3 \\ u^5 + u^3 + u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u^{20} + 3u^{18} + 9u^{16} + 16u^{14} + 24u^{12} + 25u^{10} + 21u^8 + 10u^6 + 3u^4 + u^2 + 1 \\ u^{20} + 2u^{18} + 6u^{16} + 8u^{14} + 9u^{12} + 6u^{10} - 4u^6 - 3u^4 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u^{28} + 3u^{26} + \cdots + u^2 + 1 \\ u^{30} + 4u^{28} + \cdots + 4u^6 + u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u^{36} + 5u^{34} + \cdots + u^2 + 1 \\ u^{36} + 4u^{34} + \cdots - 12u^8 + u^4 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u^{36} + 5u^{34} + \cdots + u^2 + 1 \\ u^{36} + 4u^{34} + \cdots - 12u^8 + u^4 \end{pmatrix}$$

**(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 |
|---|---|---|
| $u = -0.875223 - 0.873873I$ | $13.32805 + 3.02786I$ | $9.83607 - 2.66641I$ |
| $u = -0.875223 + 0.873873I$ | $13.32805 - 3.02786I$ | $9.83607 + 2.66641I$ |
| $u = -0.870715 - 0.838941I$ | $5.95973 - 3.04960I$ | $4.06449 + 3.14119I$ |
| $u = -0.870715 + 0.838941I$ | $5.95973 + 3.04960I$ | $4.06449 - 3.14119I$ |
| $u = -0.843860 - 0.948276I$ | $13.09216 + 3.34284I$ | $9.40559 - 2.33946I$ |
| $u = -0.843860 + 0.948276I$ | $13.09216 - 3.34284I$ | $9.40559 + 2.33946I$ |
| $u = -0.820997 - 0.966966I$ | $5.55749 + 9.33109I$ | $3.17264 - 7.99089I$ |
| $u = -0.820997 + 0.966966I$ | $5.55749 - 9.33109I$ | $3.17264 + 7.99089I$ |
| $u = -0.779508 - 0.891887I$ | $2.10207 + 2.93926I$ | $-0.68998 - 2.61803I$ |
| $u = -0.779508 + 0.891887I$ | $2.10207 - 2.93926I$ | $-0.68998 + 2.61803I$ |
| $u = -0.626043 - 0.264435I$ | $5.60817 - 5.19685I$ | $8.42147 + 3.57324I$ |
| $u = -0.626043 + 0.264435I$ | $5.60817 + 5.19685I$ | $8.42147 - 3.57324I$ |
| $u = -0.502474$ | $2.04246$ | $5.49400$ |
| $u = -0.460143 - 0.420306I$ | $0.805234 + 0.974268I$ | $6.02798 - 5.00492I$ |
| $u = -0.460143 + 0.420306I$ | $0.805234 - 0.974268I$ | $6.02798 + 5.00492I$ |
| $u = -0.390346 - 0.960557I$ | $3.43096 + 8.91009I$ | $2.74944 - 8.71316I$ |
| $u = -0.390346 + 0.960557I$ | $3.43096 - 8.91009I$ | $2.74944 + 8.71316I$ |
| $u = -0.337540 - 0.864230I$ | $-0.56423 + 2.11330I$ | $1.09230 - 3.69401I$ |
| $u = -0.337540 + 0.864230I$ | $-0.56423 - 2.11330I$ | $1.09230 + 3.69401I$ |
| $u = -0.260243 - 0.916500I$ | $-0.55475 + 2.53820I$ | $-1.85794 - 4.98062I$ |
| $u = -0.260243 + 0.916500I$ | $-0.55475 - 2.53820I$ | $-1.85794 + 4.98062I$ |
| $u = -0.105462 - 0.932281I$ | $1.84057 - 3.53925I$ | $-0.64609 + 2.18667I$ |
| $u = -0.105462 + 0.932281I$ | $1.84057 + 3.53925I$ | $-0.64609 - 2.18667I$ |
| $u = 0.162844 - 0.900455I$ | $-3.06951 + 0.40423I$ | $-6.40296 - 0.79013I$ |
| $u = 0.162844 + 0.900455I$ | $-3.06951 - 0.40423I$ | $-6.40296 + 0.79013I$ |
| $u = 0.365857 - 0.939688I$ | $-1.92036 - 5.51147I$ | $-2.23282 + 8.80193I$ |
| $u = 0.365857 + 0.939688I$ | $-1.92036 + 5.51147I$ | $-2.23282 - 8.80193I$ |
| $u = 0.470586 - 0.843960I$ | $5.13702 - 0.60420I$ | $6.02074 + 3.22438I$ |
| $u = 0.470586 + 0.843960I$ | $5.13702 + 0.60420I$ | $6.02074 - 3.22438I$ |
| $u = 0.554663 - 0.245568I$ | $0.18779 + 2.08707I$ | $3.93114 - 4.06148I$ |

| | Solution to $I_1^u$ | $\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$ | Cusp shape |
|---|---|---|---|
| $u =$ | $0.554663 + 0.245568I$ | $0.18779 - 2.08707I$ | $3.93114 + 4.06148I$ |
| $u =$ | $0.596974 - 0.453484I$ | $6.35213 - 3.35003I$ | $9.32328 + 3.71815I$ |
| $u =$ | $0.596974 + 0.453484I$ | $6.35213 + 3.35003I$ | $9.32328 - 3.71815I$ |
| $u =$ | $0.783357 - 0.929898I$ | $5.59455 - 6.24371I$ | $4.08567 + 6.12076I$ |
| $u =$ | $0.783357 + 0.929898I$ | $5.59455 + 6.24371I$ | $4.08567 - 6.12076I$ |
| $u =$ | $0.794802 - 0.846620I$ | $5.84619 + 0.30511I$ | $4.74215 - 0.68346I$ |
| $u =$ | $0.794802 + 0.846620I$ | $5.84619 - 0.30511I$ | $4.74215 + 0.68346I$ |
| $u =$ | $0.823197 - 0.950466I$ | $6.60488 - 5.35917I$ | $5.58298 + 2.28264I$ |
| $u =$ | $0.823197 + 0.950466I$ | $6.60488 + 5.35917I$ | $5.58298 - 2.28264I$ |
| $u =$ | $0.826359 - 0.975126I$ | $11.2002 - 12.8798I$ | $7.26789 + 7.98380I$ |
| $u =$ | $0.826359 + 0.975126I$ | $11.2002 + 12.8798I$ | $7.26789 - 7.98380I$ |
| $u =$ | $0.859423 - 0.856578I$ | $6.90053 - 0.89679I$ | $6.21998 + 2.86996I$ |
| $u =$ | $0.859423 + 0.856578I$ | $6.90053 + 0.89679I$ | $6.21998 - 2.86996I$ |
| $u =$ | $0.883253 - 0.836357I$ | $11.63814 + 6.54354I$ | $8.13899 - 3.14613I$ |
| $u =$ | $0.883253 + 0.836357I$ | $11.63814 - 6.54354I$ | $8.13899 + 3.14613I$ |

**II. u-Polynomials**

| Crossings | u-Polynomials at each crossings |
|---|---|
| $c_1, c_6$ | $(u^{45} + u^{44} + \cdots + u - 1)$ |
| $c_2, c_5, c_7$ | $(u^{45} + 11u^{44} + \cdots - u - 1)$ |
| $c_3$ | $(u^{45} + 3u^{44} + \cdots + 7u + 3)$ |
| $c_4, c_9, c_{10}$ | $(u^{45} + u^{44} + \cdots - u + 1)$ |
| $c_8$ | $(u^{45} + u^{44} + \cdots + 44u - 40)$ |
| $c_{11}$ | $(u^{45} + 9u^{44} + \cdots + 729u + 89)$ |

**III. Riley Polynomials**

| Crossings | Riley Polynomials at each crossings |
|---|---|
| $c_1, c_6$ | $(y^{45} + 11y^{44} + \cdots - y - 1)$ |
| $c_2, c_5, c_7$ | $(y^{45} + 47y^{44} + \cdots - 9y - 1)$ |
| $c_3$ | $(y^{45} - 5y^{44} + \cdots + 31y - 9)$ |
| $c_4$ | $(y^{45} - 41y^{44} + \cdots - y - 1)$ |
| $c_8$ | $(y^{45} + 7y^{44} + \cdots - 11024y - 1600)$ |
| $c_9, c_{10}$ | $(y^{45} - 41y^{44} + \cdots - y - 1)$ |
| $c_{11}$ | $(y^{45} + 19y^{44} + \cdots - 92805y - 7921)$ |