

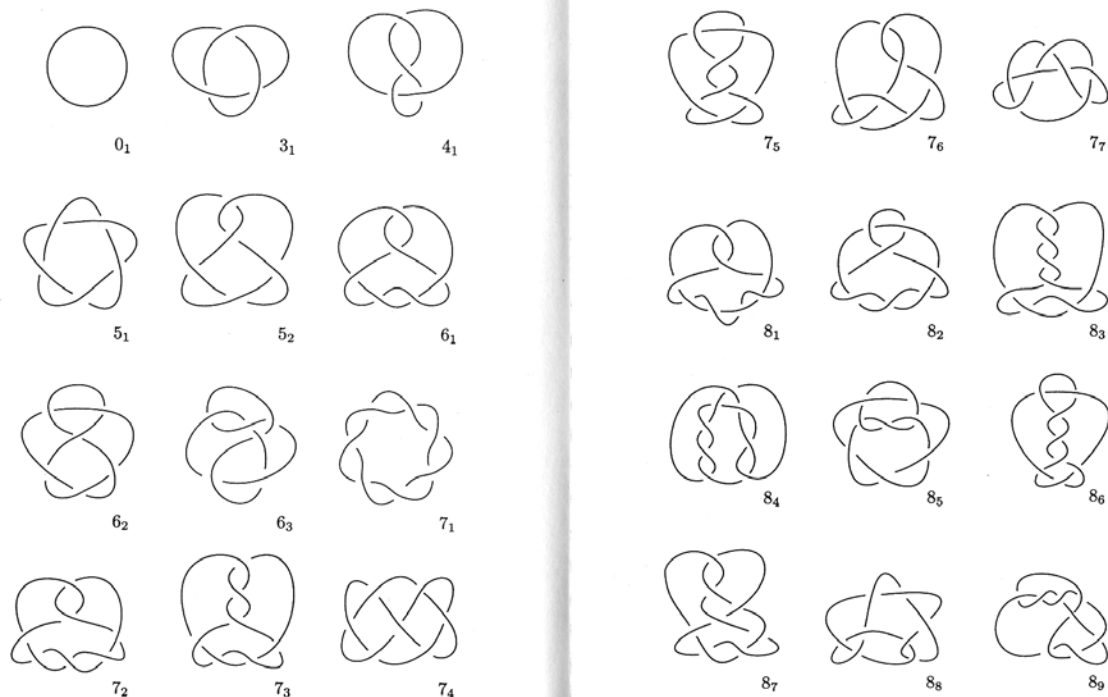
Knotentheorie Alexanderpolynome

Literatur Seite 1

1.10.2018

Anhang 1: Knotentafel

Seite 1 Knoten 0.1 bis 8.9, Alexanderpolynome 3.1 -8.6+9.37-9.49
 Seiten 2+3 Alexanderpolynome 8.6-9.36
 Seite 4 Knoten 8.10-9.12 + 9.37-9.49 + ANLEITUNG für Alexanderp.



3 ₁	$t^2 - t + 1$
4 ₁	$t^2 - 3t + 1$
5 ₁	$t^4 - t^3 + t^2 - t + 1$
5 ₂	$2t^2 - 3t + 2$
6 ₁	$2t^2 - 5t + 2$
6 ₂	$t^4 - 3t^3 + 3t^2 - 3t + 1$
6 ₃	$t^4 - 3t^3 + 5t^2 - 3t + 1$
7 ₁	$t^6 - t^5 + t^4 - t^3 + t^2 - t + 1$
7 ₂	$3t^2 - 5t + 3$
7 ₃	$2t^4 - 3t^3 + 3t^2 - 3t + 2$
7 ₄	$4t^2 - 7t + 4$
7 ₅	$2t^4 - 4t^3 + 5t^2 - 4t + 2$
7 ₆	$t^4 - 5t^3 + 7t^2 - 5t + 1$
7 ₇	$t^4 - 5t^3 + 9t^2 - 5t + 1$
8 ₁	$3t^2 - 7t + 3$
8 ₂	$t^6 - 3t^5 + 3t^4 - 3t^3 + 3t^2 - 3t + 1$
8 ₃	$4t^2 - 9t + 4$
8 ₄	$2t^4 - 5t^3 + 5t^2 - 5t + 2$
8 ₅	$t^6 - 3t^5 + 4t^4 - 5t^3 + 4t^2 - 3t + 1$

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Anhang 2: Alexander-Polynome

9 ₃₇	$2t^4 - 11t^3 + 19t^2 - 11t + 2$
9 ₃₈	$5t^4 - 14t^3 + 19t^2 - 14t + 5$
9 ₃₉	$3t^4 - 14t^3 + 21t^2 - 14t + 3$
9 ₄₀	$t^6 - 7t^5 + 18t^4 - 23t^3 + 18t^2 - 7t + 1$
9 ₄₁	$3t^4 - 12t^3 + 19t^2 - 12t + 3$
9 ₄₂	$t^4 - 2t^3 + t^2 - 2t + 1$
9 ₄₃	$t^6 - 3t^5 + 2t^4 - t^3 + 2t^2 - 3t + 1$
9 ₄₄	$t^4 - 4t^3 + 7t^2 - 4t + 1$
9 ₄₅	$t^4 - 6t^3 + 9t^2 - 6t + 1$
9 ₄₆	$2t^2 - 5t + 2$
9 ₄₇	$t^6 - 4t^5 + 6t^4 - 5t^3 + 6t^2 - 4t + 1$
9 ₄₈	$t^4 - 7t^3 + 11t^2 - 7t + 1$
9 ₄₉	$3t^4 - 6t^3 + 7t^2 - 6t + 3$

Charles Livingston
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 Braunschweig 1995, Vieweg
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Alexei Sossinski
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8_6	$2t^4 - 6t^3 + 7t^2 - 6t + 2$
8_7	$t^6 - 3t^5 + 5t^4 - 5t^3 + 5t^2 - 3t + 1$
8_8	$2t^4 - 6t^3 + 9t^2 - 6t + 2$
8_9	$t^6 - 3t^5 + 5t^4 - 7t^3 + 5t^2 - 3t + 1$
8_{10}	$t^6 - 3t^5 + 6t^4 - 7t^3 + 6t^2 - 3t + 1$
8_{11}	$2t^4 - 7t^3 + 9t^2 - 7t + 2$
8_{12}	$t^4 - 7t^3 + 13t^2 - 7t + 1$
8_{13}	$2t^4 - 7t^3 + 11t^2 - 7t + 2$
8_{14}	$2t^4 - 8t^3 + 11t^2 - 8t + 2$
8_{15}	$3t^4 - 8t^3 + 11t^2 - 8t + 3$
8_{16}	$t^6 - 4t^5 + 8t^4 - 9t^3 + 8t^2 - 4t + 1$
8_{17}	$t^6 - 4t^5 + 8t^4 - 11t^3 + 8t^2 - 4t + 1$
8_{18}	$t^6 - 5t^5 + 10t^4 - 13t^3 + 10t^2 - 5t + 1$
8_{19}	$t^6 - t^5 + t^3 - t + 1$
8_{20}	$t^4 - 2t^3 + 3t^2 - 2t + 1$
8_{21}	$t^4 - 4t^3 + 5t^2 - 4t + 1$
9_1	$t^8 - t^7 + t^6 - t^5 + t^4 - t^3 + t^2 - t + 1$
9_2	$4t^2 - 7t + 4$
9_3	$2t^6 - 3t^5 + 3t^4 - 3t^3 + 3t^2 - 3t + 2$
9_4	$3t^4 - 5t^3 + 5t^2 - 5t + 3$
9_5	$6t^2 - 11t + 6$
9_6	$2t^6 - 4t^5 + 5t^4 - 5t^3 + 5t^2 - 4t + 2$
9_7	$3t^4 - 7t^3 + 9t^2 - 7t + 3$
9_8	$2t^4 - 8t^3 + 11t^2 - 8t + 2$
9_9	$2t^6 - 4t^5 + 6t^4 - 7t^3 + 6t^2 - 4t + 2$
9_{10}	$4t^4 - 8t^3 + 9t^2 - 8t + 4$

$$9_{11} \quad t^6 - 5t^5 + 7t^4 - 7t^3 + 7t^2 - 5t + 1$$

$$9_{12} \quad 2t^4 - 9t^3 + 13t^2 - 9t + 2$$

$$9_{13} \quad 4t^4 - 9t^3 + 11t^2 - 9t + 4$$

$$9_{14} \quad 2t^4 - 9t^3 + 15t^2 - 9t + 2$$

$$9_{15} \quad 2t^4 - 10t^3 + 15t^2 - 10t + 2$$

$$9_{16} \quad 2t^6 - 5t^5 + 8t^4 - 9t^3 + 8t^2 - 5t + 2$$

$$9_{17} \quad t^6 - 5t^5 + 9t^4 - 9t^3 + 9t^2 - 5t + 1$$

$$9_{18} \quad 4t^4 - 10t^3 + 13t^2 - 10t + 4$$

$$9_{19} \quad 2t^4 - 10t^3 + 17t^2 - 10t + 2$$

$$9_{20} \quad t^6 - 5t^5 + 9t^4 - 11t^3 + 9t^2 - 5t + 1$$

$$9_{21} \quad 2t^4 - 11t^3 + 17t^2 - 11t + 2$$

$$9_{22} \quad t^6 - 5t^5 + 10t^4 - 11t^3 + 10t^2 - 5t + 1$$

$$9_{23} \quad 4t^4 - 11t^3 + 15t^2 - 11t + 4$$

$$9_{24} \quad t^6 - 5t^5 + 10t^4 - 13t^3 + 10t^2 - 5t + 1$$

$$9_{25} \quad 3t^4 - 12t^3 + 17t^2 - 12t + 3$$

$$9_{26} \quad t^6 - 5t^5 + 11t^4 - 13t^3 + 11t^2 - 5t + 1$$

$$9_{27} \quad t^6 - 5t^5 + 11t^4 - 15t^3 + 11t^2 - 5t + 1$$

$$9_{28} \quad t^6 - 5t^5 + 12t^4 - 15t^3 + 12t^2 - 5t + 1$$

$$9_{29} \quad t^6 - 5t^5 + 12t^4 - 15t^3 + 12t^2 - 5t + 1$$

$$9_{30} \quad t^6 - 5t^5 + 12t^4 - 17t^3 + 12t^2 - 5t + 1$$

$$9_{31} \quad t^6 - 5t^5 + 13t^4 - 17t^3 + 13t^2 - 5t + 1$$

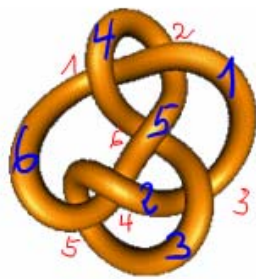
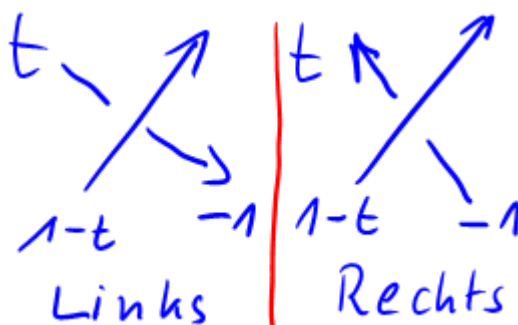
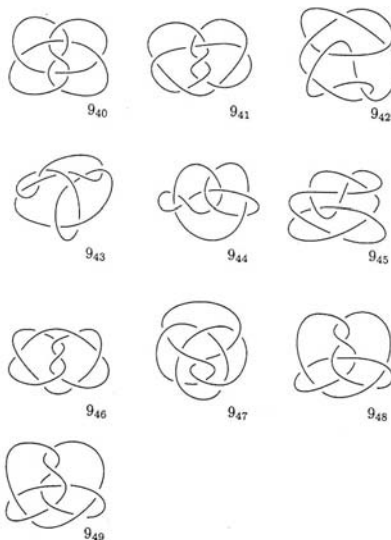
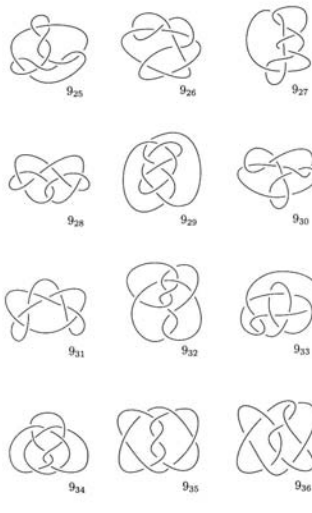
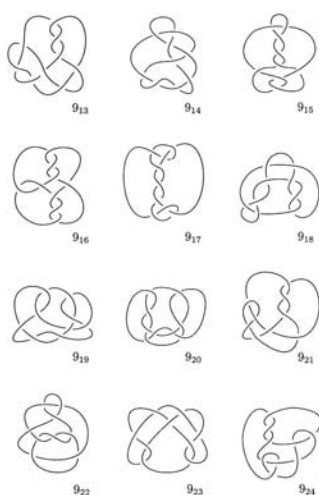
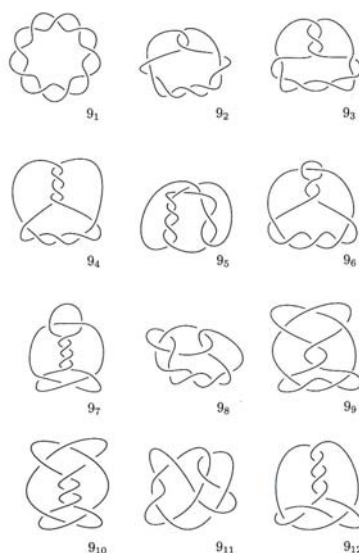
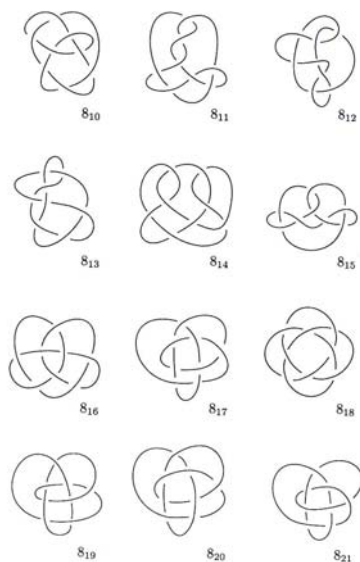
$$9_{32} \quad t^6 - 6t^5 + 14t^4 - 17t^3 + 14t^2 - 6t + 1$$

$$9_{33} \quad t^6 - 6t^5 + 14t^4 - 19t^3 + 14t^2 - 6t + 1$$

$$9_{34} \quad t^6 - 6t^5 + 16t^4 - 23t^3 + 16t^2 - 6t + 1$$

$$9_{35} \quad 7t^2 - 13t + 7$$

$$9_{36} \quad t^6 - 5t^5 + 8t^4 - 9t^3 + 8t^2 - 5t + 1$$



Alexandermatrix: Jede Kreuzung hat ihre Zeile, jeder Strang seine Spalte.
 Dann eine Zeile und eine Spalte streichen.
 Das Alexanderpolynom ist die Determinante der reduzierten Alexandermatrix.