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Scientific

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Algebraic and Geometric Methods of Analysis

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LIST OF TOPICS

- Algebraic methods in geometry
- Differential geometry in the large
- Geometry and topology of differentiable manifolds
- General and algebraic topology
- Dynamical systems and their applications
- Geometric and topological methods in natural sciences

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An explicit formula for the A -polynomial of the knot with Conway's notation $C(2n, 4)$

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An explicit formula for the A -polynomial of the knot with Conway's notation $C(2n, 4)$ up to repeated factors is presented.

The main purpose of the paper is to find the explicit formula for the A -polynomial of the knot with Conway's notation $C(2n, 4)$ up to repeated factors. Let us denote the knot with Conway's notation $C(2n, 4)$ by T_{2n} and the A -polynomial of the knot with Conway's notation $C(2n, 4)$ by A_{2n} . The following theorem gives the explicit formula for the A -polynomial of T_{2n} .

Theorem 1. *The A -polynomial $A_{2n} = A_{2n}(L, M)$ is given explicitly by*

$$A_{2n} = p_{2n}(u)p_{2n}(-u)$$

where

$$p_{2n}(z) = \begin{cases} \sum_{i=0}^{2n} \binom{\lfloor \frac{i}{2} \rfloor + n}{i} 2^{-2\lfloor \frac{i+1}{2} \rfloor - i} (M^2)^{-\lfloor \frac{i}{2} \rfloor - 2\lfloor \frac{i+1}{2} \rfloor + i + n} (LM^2 + 1)^{-2\lfloor \frac{i+1}{2} \rfloor - i + 2n} \\ \times (-2LM^6 + LM^4 - LM^2 - M^4 + M^2z + M^2 - 2)^{\lfloor \frac{i+1}{2} \rfloor} \\ \times (LM^2 + L + M^2 + z + 1)^i (-3LM^2 + L + M^2 + z - 3)^{\lfloor \frac{i-1}{2} \rfloor} \\ \times ((-1)^{i+1} (LM^2 + 1) - 2LM^2 + L + M^2 + z - 2) \quad \text{if } n \geq 0, \\ \sum_{i=0}^{-2n} \binom{\lfloor \frac{i-1}{2} \rfloor - n}{i} 2^{-2\lfloor \frac{i+1}{2} \rfloor - i} (M^2)^{-\lfloor \frac{i}{2} \rfloor - 2\lfloor \frac{i+1}{2} \rfloor + i - n} (LM^2 + 1)^{-\frac{1}{2} - 2\lfloor \frac{i+1}{2} \rfloor - i - 2n} \\ \times (-2LM^6 + LM^4 - LM^2 - M^4 + M^2z + M^2 - 2)^{\lfloor \frac{i+1}{2} \rfloor} \\ \times (LM^2 + L + M^2 + z + 1)^i (-3LM^2 + L + M^2 + z - 3)^{\lfloor \frac{i-1}{2} \rfloor} \\ \times ((-1)^i (-2LM^2 + L + M^2 + z - 2) - LM^2 - 1) \quad \text{if } n < 0, \end{cases}$$

and

$$u = \sqrt{5L^2M^4 - 2L^2M^2 + L^2 - 2LM^4 + 12LM^2 - 2L + M^4 - 2M^2 + 5}.$$

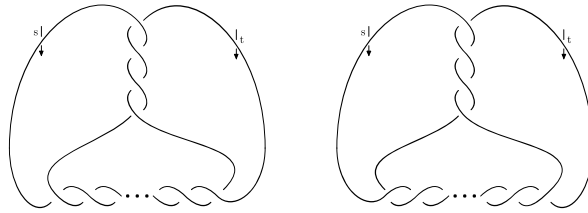


FIGURE 1.1. A two bridge knot with Conway's notation $C(2n, 4)$ for $n > 0$ (left) and for $n < 0$ (right)

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