Finite Type Invariants of Ribbon Knotted Balloons and Hoops

Abstract. On my September 17 Geneva talk (ω/sep) I described a certain trees-and-wheels-valued invariant of ribbon knotted loops and 2-spheres in 4-space, and my October 8 Geneva talk (ω/oct) describes its reduction to the Alexander polynomial. Today I will explain how that invariant arises completely naturally within the theory of finite type invariants of ribbon knotted loops and 2-spheres in 4-space.

Flash:
\[ \mathcal{F}(I) \mathcal{T} \times \mathcal{C}(I) \mathcal{T} \]

my goal is to tell you why such invariant is expected, not to derive the formulas.

\[ \mathcal{K}^{th} = \{ A \} / \text{relations.} \]

original conjecture: That's all.

\[ \mathcal{K}^{th} = \{ \mathcal{K}^{th} \} / \text{relations.} \]

\[ \mathcal{Z}^{th} = \{ \mathcal{Z}^{th} \} / \text{relations.} \]

\[ \mathcal{K}^{th} = \bigoplus \mathcal{Y}_{n+1} \]

1. \( \mathcal{Y} \) is surjective.
2. \( \mathcal{Y} \mathcal{Y} = \mathcal{I} \mathcal{Y} \mathcal{I} \mathcal{Y} \)

\[ \Rightarrow 1. \mathcal{Z} \text{ is an expansion} \]
2. \( \mathcal{Y} \) is an isomorphism.

Describe \( \mathcal{K}^{th} \)

Describe \( \mathcal{Z} \)

[Warning: Not compatible]

Bracket rise.

Thus and whils, \( 3 = \log \mathcal{Z} \).

“God created the knots, all else in topology is the work of mortals.”

Leopold Kronecker (modified)