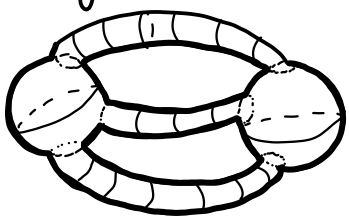
Shruthi Sridhar

Invariants of 2-knots

1-knot: $S^1 \hookrightarrow S^3$

2-knot: $S^2 \hookrightarrow S^4$

} Embeddings



Ex: Ribbon 2-knot

$S^3 \cong T^2 \coprod_{\partial T^2} T^2$, $S^4 \cong (B^3 \times S^1) \coprod_{\partial} (S^2 \times B^2)$

→ "Spun knots"

Invariants

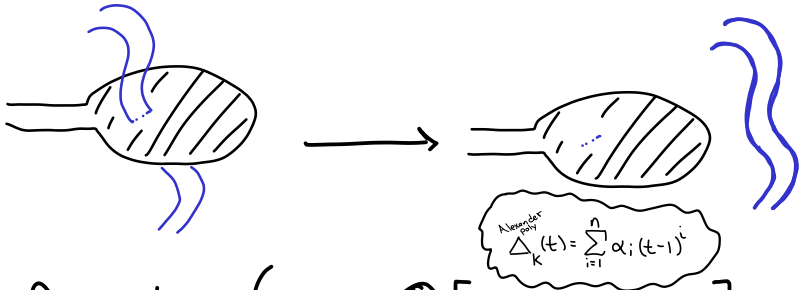
- $\pi_1(S^4 - K)$
- $\pi_2(S^4 - K)$
- π_2 as a $\mathbb{Z}[\pi_1]$-modules

Harder to find combinatorial invariants - new types of singularities (crossings → intersecting planes) when projecting to $\mathbb{R}^3$

{See slice knots}

Ribbon Invariants

- Unclasping



Not a complete set of invts ($\longleftrightarrow \mathbb{Q}[\alpha_0, \cdots, \alpha_n \cdots]$)