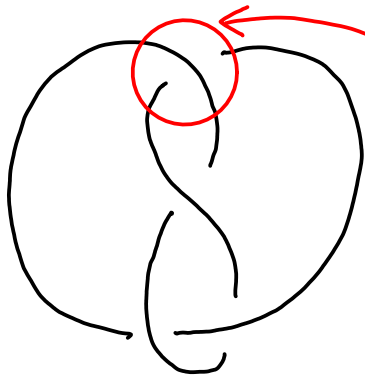


LEGENDRIAN KNOTS

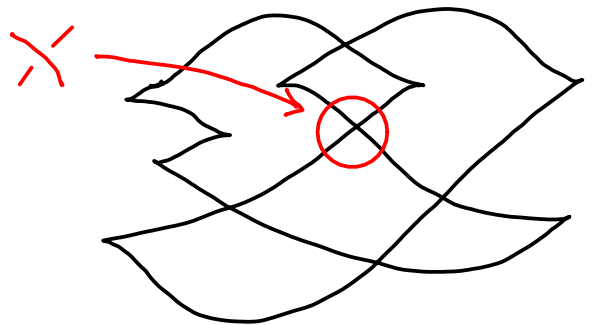
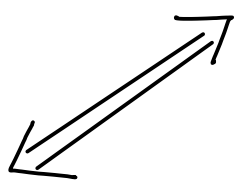
VERA VÉRTESI



OVER-UNDER INFORMATION

INSTEAD: THE PROJECTION DETERMINES THE 3RD COORDINATE BY

$$z = -\frac{dy}{dx}$$



FRONT PROJECTION OF A LEGENDRIAN KNOT

$$TK \in \xi_{st} = \ker(dy + z dx)$$

IN GENERAL A CONTACT 3-MFLD (Y, ξ) LOCALLY LOOKS LIKE (\mathbb{R}^3, ξ_{st})
 ↑
 PLANEDISTRIBUTION

QUESTION: SMOOTHLY ISOTOPIC LEGENDRIAN KNOTS

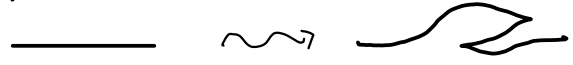


ISOTOPIC THROUGH LEGENDRIAN KNOTS

LEGENDRIAN ISOTOPY

ANSWER: NO:

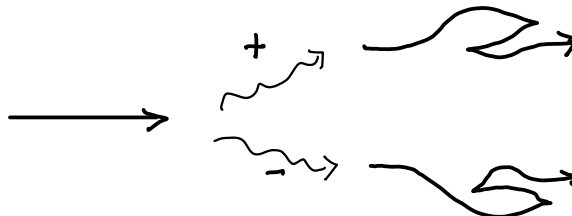
CHANGE LOCALLY:



STABILISATION

THURSTON-BENNEQUIN # ≠

IF K IS ORIENTED \Rightarrow 2 STABILISATIONS



ROTATION # ≠

QUESTION: ARE THESE 2 INVARIANTS ENOUGH TO TELL APART DIFFERENT LEGENDRIAN KNOTS IN A SMOOTH KNOT TYPE?

YES

- UNKNOT (ELIASBERG)
 - TORUS KNOTS
 - FIGURE EIGHT KNOT
- } ETNYRE
} HONDA

LEGENDRIAN SIMPLE KNOT

BUT NOT ALWAYS

- 5_2 KNOT (CHECKANOV)



CONTACT HOMOLOGY

- HEEGAARD FLOER THEORY (HFK)
(NG, OZSVÁTH-SZABÓ-THURSTON)
- CONVEX SURFACE THEORY
(ETNYRE-HONDA)

OWN RESEARCH

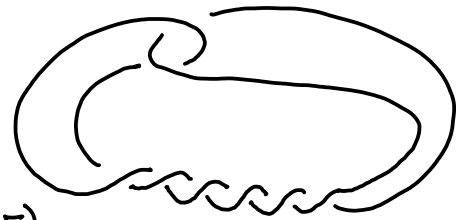
- PAST:
- UNDERSTANDING RELATIONS BTWN INVARIANTS OF LEGENDRIAN KNOTS IN HFK (WITH STIPSICZ)
 - CONSTRUCTING ∞ LY MANY NON-SIMPLE KNOTS

ONGOING: - CLASSIFICATION OF LEGENDRIAN 5_2 KNOTS

& ALL TWIST KNOTS

(WITH ETNYRE-NG)

- CLASSIFICATION OF LEGENDRIAN POSITIVE BRAIDS (WITH ETNYRE)
- GENERALISATION OF HFK (WITH BALDWIN-ETNYRE)



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