

HOMOTOPY GROUPS OF SPACES OF KNOTS WITH BOW, ARROWS AND BORDISMS

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The computation of higher homotopy groups of the space of embedded knots in \mathbb{R}^n , for $n \geq 4$, is an outstanding open problem. Some of the most advanced and elaborated techniques have been applied to this problem, like functor calculus, with relative success for low degree. However, the power of these tools is in the root of their fail, since they become too involved for allowing precise computations on high dimensional families.

In this talk, we will explain a novel low-tech approach to this problem based on the interpretation of the underlying obstruction theory as a decorated bordism class. This will allow us to easily replicate the known results without suffering dimensional curse. Finally, we will show how introducing nuclear weapons like Igusa's theory and h -principle for horizontal knots, we can push this technique much further.

Joint work in progress with F. Cantero, E. Fernández and F. Presas.