Numerical invariants of twisted knots

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Abstract

Knots in oriented thickened surfaces are known as Twisted knots, which was introduced by Mario O Bourgoin [1] in 2008.

In this talk, we discuss the invariants of twisted knots derived from the invariants of virtual knots, such as the odd writhe and arc shift number [2]. We present a class of twisted knots where the arc shift number of every member is 1. This is a joint work with my supervisor M. Prabhakar.

Additionally, we discuss one more numerical invariant for twisted knots obtained from warping degree [3], and we use the warping degree to develop a labeling scheme for twisted knots, known as 'warping labeling'. We have further generalized this scheme to 'up-down labeling' for twisted knots. This is a collaborative work with A. Shimizu and M. Prabhakar.

References

[1] M. O. Bourgoin, *Twisted link theory*, Algebr. Geom. Topol. **8** (2008), no. 3, 1249–1279.

[2] K. Negi and M. Prabhakar, *Generalization of Arc Shift for twisted knots*, J. Knot theory and its Ramifications, Vol. 33, No. 02, 2450004 (2024).

[3] K. Negi, A. Shimizu, M. Prabhakar, *Warping Labeling for twisted knots and twisted virtual braids*, arXiv:2406.08505, 2024.