

1154-57-971

Micah Chrisman* (chrisman.76@osu.edu). *Slice obstructions in the lower central series of the extended virtual knot group*. Preliminary report.

Let Σ be a closed oriented surface and K a knot in $\Sigma \times [0, 1]$. Then K is said to be (virtually) slice if there is a compact connected oriented 3-manifold W and a disc D smoothly embedded in $W \times [0, 1]$ such that $\partial W = \Sigma$ and $\partial D = K$. Here we prove that the lower central series of the extended virtual knot group \tilde{G} is a concordance invariant for knots in thickened surfaces. Numerical concordance invariants for knots can be extracted from the nilpotent quotients which are analogous to Milnor's $\bar{\mu}$ -invariants of classical multi-component links in S^3 . There are 92800 virtual knots having at most six classical crossings. We apply our invariants to determine their slice status. Using our invariants together with all previously known slice obstructions, we reduce to 4 the number of virtual knots having unknown slice status. In particular, the new invariants can obstruct sliceness for many virtual knots having trivial Rasmussen invariant, graded genus, generalized Alexander polynomial, affine index polynomial, and parity projection. (Received September 12, 2019)