Reidemeister moves for triple-crossing link diagrams

Martin Palmer-Anghel ∥ Knots and representation theory seminar, Moscow on 7 September 2020

Abstract.

Knots and links are classically represented by diagrams: immersed 1-manifolds in the plane where all crossings consist of exactly two strands intersecting transversely (together with over-under information). A diagram of a given link is unique up to ambient isotopy and the three classical *Reidemeister moves*. In 2013, Colin Adams introduced the concept of "n-diagrams" for any integer $n \geqslant 2$, which are immersed 1-manifolds in the plane where all crossings consist of exactly n strands intersecting transversely (together with over-under information). A natural question arises: are there *"higher" Reidemeister moves* for n-diagrams, in the sense that any two n-diagrams representing the same link are connected by a finite sequence of these moves? I will present a positive answer for $n = 3$, describing a complete set of (five) moves for 3-diagrams.

This represents joint work with Colin Adams and Jim Hoste.