

Psybrackets, Pseudoknots and Singular knots

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Abstract: In 2010, a *pseudodiagram* was introduced by Ryo Hanaki. A pseudodiagram is a knot or link diagram where we ignore over/under information at some crossings of the diagram. This definition is motivated by applications in molecular biology such as modeling knotted DNA, where data often comes inconclusive with respect to which crossing it represents.

In 2012, Allison Henrich, Rebecca Hoberg, Slavik Jablan, Lee Johnson, Elizabeth Minten, and Ljiljana Radvić extended this idea to a pseudoknot and pseudolink. A *pseudoknot* (or *pseudolink*) is an equivalence class of pseudodiagrams modulo pseudo Reidemister moves.

In this talk, we would like to introduce a *psybracket* consisting of two maps $<, , >_c$, $<, , >_p: X \times X \times X \rightarrow X$ satisfying some axioms derived from pseudo Reidemeister moves. By using this, we define an invariant, called the *psybracket counting invariant*, of pseudolinks and singular links. We also give examples of the coloring invariant $\Phi_X^{\mathbb{Z}}$ for the 2-bouquet graphs and the pseudoknots up to 5 crossings with a choice of orientation. This is a joint work with Jieon Kim and Sam Nelson.