

Lecture 6. Problems

June 1, 2022

1 Research problems

1. How to construct braids whose plat closure is the given link by using I -moves?
2. What about 3-manifolds (Kurlin)?
3. Ask Lambropoulou: are there any invariants of 3-manifolds coming from L -moves
4. How to construct invariants for links by using Morton's construction?
5. (Problem by Louis H. Kauffman) Formulate a good theory of virtual Hecke algebras and welded Hecke algebras.
6. (Problems by Roger Fenn) Given a generalised knot theory K there is a braid monoid $M(K)$ of "positive braids" and a group $B(K)$ obtained by groupifying $M(K)$. Does the natural map $M(K) \rightarrow B(K)$ always inject? True for classical braids and singular braids. Probably true for virtual and welded braids.
7. (Problems by Roger Fenn) Define a good analogue of the Homflypt polynomial for welded knots