Detecting Conjugates

- Detect conjugates by comparing words.

Word Problem Algorithms:

- Lawrence-Krammer matrix representation. $O(ln^6)$

- Artin's action on free group. $O(3^l n)$

- Dehornoy handle reduction

KnotInfo Test

- KnotInfo database 2977 knots and their braid representations.

- Our algorithm identifies quasipositive knots ($rk(x) = |\gamma(x)|$) with a 75% success rate.

- Shows that $g_S = g_r$ for 498 knots.