

Problem Set #4 - Math 569

Reading: Seifert Pairing, Cyclic Branched Covers, Link Sing, Knot Products 1, and read lightly Exotic Spheres. (on our website)

Problems :

1°. In www.math.uic.edu/~kkauffman/

QuickTrip.pdf

Read section 6 (Knotted 2-spheres)
pages 132-139.

(a) Write out your own notes on Example 10 (page 135) and when you get to the part about finding the Alexander polynomial from the group presentation $G = \langle x, a \mid xa^2 = ax \rangle$, read the earlier part of the paper and learn how to do this.

(b) [See also www.math.uic.edu/~kkauffman/FoxCalculus.pdf]
Make your own example of an embedding of $S^2 \hookrightarrow S^4$, find $\pi_1(S^4 - S^2)$ and the Alexander poly.

2°. Show that if $S(K)$ denotes the Seifert spanning surface (connected) associated with a link diagram K and if $K \sim K'$ by a Reidemeister move, then $S(K)$ and $S(K')$ are S -equivalent surfaces.