Mathematics, Statistics, and Computer Science **@ UIC**

Geometry, Topology and Dynamics Seminar

Irreducible homology $S^1 \times S^2$s which aren't (zero) surgery on a knot

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Abstract: A well-known theorem of Lickorish and Wallace states that every closed orientable 3-manifold arises from the operation of Dehn surgery, performed upon a link in the 3-sphere. It is interesting to ask: how many components must such a link have? I'll survey this problem and discuss recent constructions of manifolds with the homology of $S^1 \times S^2$ which can't arise as Dehn surgery on a knot in S^3. We verify this using an obstruction coming from the Heegaard Floer homology invariants of Osváth and Szabó. Our examples have weight one fundamental group and were constructed to answer a question from Aschenbrenner, Friedl and Wilton's book on 3-manifold groups. This is joint work with Thomas Mark, Kyungbae Park, and Min Hoon Kim.

Monday, April 9 at 3:00 PM in SEO 636