1054-57-177 **Danny Calegari*** (dannyc@its.caltech.edu), California Institute of Technology, Pasadena, CA 91125. *Knots with small rational genus.*

(joint work with Cameron Gordon)

If K is a knot in a 3-manifold M, and $[K]$ has finite order in homology, there is some Seifert surface which wraps n times around the knot K for some n. Define the rational genus of K to be the infimum of $-\chi(S)/2n$ over all surfaces S and all n.

We classify knots in 3-manifolds with sufficiently small rational genus. In fact, there is a positive constant C so that if K is a knot with rational genus at most C, then K is "geometric" in M. For example, if M is hyperbolic, then K is isotopic to the core of a Margulis tube. If M is a Seifert fibered space, then K is isotopic to a fiber; and so on. (Received September 13, 2009)