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J. Elisenda Grigsby* (egrigsby@math.columbia.edu), 2990 Broadway, MC 4406, New York, NY 10027, and **Daniel Ruberman** and **Saso Strle**. *Knot Concordance and Heegaard Floer homology*.

The *smooth concordance group*, \mathcal{C}_s , is the group of equivalence classes of knots, $K \subset (S^3 = \partial B^4)$, subject to the equivalence relation $K_1 \sim K_2$ if the connected sum of K_1 with the mirror of K_2 bounds a smoothly imbedded disk in B^4 . Although \mathcal{C}_s has been studied for over 40 years, there is much still unknown about its algebraic structure. For example, there are still no examples of torsion of order $n \neq 1, 2$.

I will discuss what Heegaard Floer homology, a package of 3-manifold, knot, and link invariants introduced by Ozsváth and Szabó in 2000, can tell us about this question. In particular, I will describe two new invariants which yield an obstruction to a knot having finite smooth concordance order. These invariants are defined by examining analogues of “classical” Heegaard Floer homology invariants in the double-branched cover of K .

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