1105-55-232   **Carl Hammarsten*** (`chammar@gwu.edu`), Department of Mathematics, Monroe Hall, 2115 G Street NW, Washington, DC 20052. *Combinatorial Heegaard Floer Homology and Decorated Heegaard Diagrams.* Preliminary report.

Heegaard Floer homology is a collection of invariants for closed oriented three-manifolds, introduced by Ozsvath and Szabo in 2004. The simplest version is defined as the homology of a chain complex coming from a Heegaard diagram of the three manifold. In the original definition, the differentials count the number of points in certain moduli spaces of holomorphic disks, which are hard to compute in general. More recently, Sarkar and Wang (2008) and Ozsvath, Stipsicz, and Szabo (2010) have determined combinatorial methods for computing this homology with Z_2 coefficients. Both methods rely on the construction of very specific Heegaard diagrams for the manifold, which are generally very complicated. We introduce the idea of a decorated Heegaard diagram. That is, a Heegaard diagram together with a collection of embedded paths satisfying certain criteria. Using this decorated Heegaard diagram, we present a combinatorial definition of a chain complex which is homotopically equivalent to the Heegaard Floer one, yet significantly smaller. (Received September 21, 2014)