

1109-20-110

Joan Birman, Nathan Broaddus* (broaddus@math.osu.edu) and **William Manasco**. *Finite rigid sets and homologically nontrivial spheres in the curve complex of a surface.*

Aramayona and Leininger have provided a "finite rigid subset" $\mathfrak{X}(\Sigma)$ of the curve complex $\mathcal{C}(\Sigma)$ of a surface $\Sigma = \Sigma_g^n$, characterized by the fact that any simplicial injection $\mathfrak{X}(\Sigma) \rightarrow \mathcal{C}(\Sigma)$ is induced by a unique element of the mapping class group $\text{Mod}(\Sigma)$. In this paper we prove that, in the case of the sphere with $n \geq 5$ marked points, the reduced homology class of the finite rigid set of Aramayona and Leininger is a $\text{Mod}(\Sigma)$ -module generator for the reduced homology of the curve complex $\mathcal{C}(\Sigma)$, answering in the affirmative a question posed by Aramayona and Leininger. For the surface $\Sigma = \Sigma_g^n$ with $g \geq 3$ and $n \in \{0, 1\}$ we find that the finite rigid set $\mathfrak{X}(\Sigma)$ of Aramayona and Leininger contains a proper subcomplex $X(\Sigma)$ whose reduced homology class is a $\text{Mod}(\Sigma)$ -module generator for the reduced homology of $\mathcal{C}(\Sigma)$ but which is not itself rigid. (Received January 27, 2015)