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Marissa Miller* (marissa9@illinois.edu). *Stable subgroups of handlebody groups.*

In a paper examining convex cocompact subgroups of the mapping class group, Durham and Taylor introduce the notion of a stable subgroup. These subgroups, which can be defined for any finitely generated group, are defined as those which are undistorted in the ambient group and for which quasi-geodesics in the ambient group with endpoints in the subgroup uniformly fellow travel. In the setting of mapping class groups, by combining work of Durham-Taylor, Kent-Leininger, and Hamenstädt, one finds that stable subgroups of mapping class groups are precisely those whose orbit maps quasi-isometrically embed into the curve graph.

There are many groups closely related to the mapping class group that also come with a related hyperbolic graph, so one can ask if there is a similar characterization of stable subgroups in those settings as well. In this presentation, I will discuss the characterization of stable subgroups in the setting of handlebody groups, which are mapping class groups of three dimensional handlebodies. We find that for genus two, there is an analogous characterization using orbit maps to the disk graph, but for all higher genus, we can find counter examples to this characterization. (Received January 18, 2021)