1135-20-344 **Sahana Hassan Balasubramanya*** (hbsahana@gmail.com). *Acylindrical group actions on quasi-trees.*

A group G is acylindrically hyperbolic if it admits a non-elementary acylindrical action on a hyperbolic space. This class is broad enough to include many examples of interest, e.g., non-elementary hyperbolic and relatively hyperbolic groups, most mapping class groups, most fundamental groups of 3-manifolds, $Out(F_n)$, etc. One of the goals of my research was to answer the following : Which groups admit non-elementary cobounded acylindrical actions on quasi-trees ? (By a quasi-tree I mean a connected graph quasi-isometric to a tree, which form a subclass of hyperbolic spaces.)

I prove that every acylindrically hyperbolic group G has a generating set X such that the corresponding Cayley graph Γ is a non-elementary quasi-tree and the action of G on Γ is acylindrical. The proof utilizes the notions of hyperbolically embedded subgroups and projection complexes. As an application, I obtain some new results about hyperbolically embedded subgroups and quasi-convex subgroups of acylindrically hyperbolic groups. (Received August 26, 2017)