1096-05-718 **Scott M Corry*** (corrys@lawrence.edu), Lawrence University, Department of Mathematics, 711 E. Boldt Way – SPC 24, Appleton, WI 54911. *Harmonic Group Actions, Genus Bounds, and Combinatorial Maps.* Preliminary report.

Suppose that $G$ is a group of automorphisms of a finite graph $X$. The $G$-action on $X$ is called *harmonic* if for every subgroup $H < G$, the quotient morphism $\Gamma \to \Gamma/H$ is harmonic in the sense of Baker-Norine. This is a strong condition, and we will present sharp linear genus bounds on the maximal size of harmonic group actions on finite graphs – these are graph-analogues of the Hurwitz (upper) and Accola-Maclachlan (lower) bounds for Riemann surfaces. Furthermore, we will describe a connection between the harmonic group actions that achieve these bounds and the classical topic of combinatorial maps. (Received September 09, 2013)