962-20-138 **Debra L Boutin*** (dboutin@hamilton.edu), Hamilton College, 198 College Hill Road, Clinton, NY 13323, and **Thomas A Stiadle** (tstiadle@henry.wells.edu), Wells College, Aurora, NY 13026. *Semi-Direct Products of Graphs of Groups.*

Mathematicians have long used automorphisms of a graph to learn about automorphisms of its fundamental group. The Realization Theorem tells us that every finite subgroup of $\mathrm{Aut}(F_n)$ shows up as a group of automorphisms of a finite graph whose fundamental group is F_n and thus characterizes the subgroups of $\mathrm{Aut}(F_n)$ that can be realized by automorphisms of a graph. This talk introduces work that generalizes this idea to graphs of groups. To learn more about automorphisms of a graph of groups and what they tell us about the automorphisms of the fundamental group we define an action of one graph of groups $\mathcal{H}$ on another $\mathcal{G}$, and a semi-direct product $\mathcal{G} \rtimes \mathcal{H}$ (which is itself a graph of groups). This talk will show how the groups $\pi_1(\mathcal{G})$ and $\pi_1(\mathcal{G} \rtimes \mathcal{H})$ are related and the conditions under which $\pi_1(\mathcal{G} \rtimes \mathcal{H})/\pi_1(\mathcal{G})$ makes sense as a subgroup of $\mathrm{Aut}(\mathcal{G})$ and $\mathrm{Aut}(\pi_1(\mathcal{G}))$. (Received August 08, 2000)