1073-05-167 **Stephen G Hartke** and **Derrick P Stolee*** (s-dstolee1@math.unl.edu). *Searching for uniquely saturated and strongly regular graphs with coupled augmentations.* Preliminary report.

When human-generated constructions and theorems fail to decide existence or non-existence, we use computational tools to search for uniquely saturated or strongly regular graphs. We adapt the technique of orbital branching which was originally developed for use in solving symmetric integer programs. Our extension uses augmentations which are coupled to the constraint system in order to exploit symmetries. We augment by K_r-*completions* to find uniquely K_r-saturated graphs and augment by λ- or μ-*augmentations* to find strongly regular graphs and digraphs. (Received July 31, 2011)