1145-54-2256 **Tim Morris*** (tuf28547@temple.edu), 1228 Tasker Street, Philadelphia, PA 19148. *Some Non-Abelian Covers of Knot Complements.*

Let K be a tame knot embedded in $\mathbf{S}^3$. We address the following, find a finite non-cyclic cover $p : X \to \mathbf{S}^3 \smallsetminus K$ such that $[\pi_1(\mathbf{S}^3 \smallsetminus K) : p_*(\pi_1(X))]$ is minimal. When K has non-trivial Alexander polynomial modulo a prime p we construct finite non-abelian representations $\rho : \pi_1(\mathbf{S}^3 \smallsetminus K) \to G$, and provide bounds for the order of G in terms of the crossing number of K. Which is an improvement on a result of Broaddus in this case. Using classical covering space theory along with the theory of Alexander stratifications we establish an upper and lower bound for the first betti number of the cover X_ρ associated to the $\ker(\rho)$ of $\mathbf{S}^3 \smallsetminus K$, consequently showing that it can be arbitrarily large. Providing an effective proof of a result due to Cooper, Long, and Reid. (Received September 25, 2018)