1154-11-2381 **Brandon Alberts*** (brandon.alberts@uconn.edu). *Counting Towers of Number Fields.*

Fix a number field K and a finite transitive subgroup $G \leq S_n$. Malle's conjecture proposes asymptotics for counting the number of G-extensions of number fields F/K with discriminant bounded above by X. A recent and fruitful approach to this problem introduced by Lemke Oliver, Wang, and Wood is to count inductively. Fix a normal subgroup $T \trianglelefteq G$. Step one: for each G/T-extension L/K, first count the number of towers of fields $F/L/K$ with $\mathrm{Gal}(F/L) \cong T$ and $\mathrm{Gal}(F/K) \cong G$ with discriminant bounded above by X. Step two: sum over all choices for the G/T-extension L/K. In this talk we discuss the close relationship between step one of this method and the first Galois cohomology group. This approach suggests a refinement of Malle's conjecture which gives new insight into the problem. We give the solution to step one when T is an abelian normal subgroup of G, and convert this into nontrivial lower bounds for Malle's conjecture whenever G has an abelian normal subgroup. (Received September 17, 2019)