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Quantitative stable arithmetic regularity in arbitrary finite groups

In 2018, Terry and Wolf showed that any stable subset of a finite abelian group can be efficiently approximated by cosets of a subgroup whose index is bounded exponentially in the approximation and stability constants. At the same time, in joint work with Pillay and Terry, we proved a version of this for arbitrary finite groups using model theoretic techniques, with stronger qualitative features, but no quantitative bounds. Here I will discuss a new effective proof of our result, which yields quantitative bounds for arbitrary finite groups, and improves the bound in Terry & Wolf's result from exponential to polynomial.