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Veronica Shalotenko*, vvs9cc@virginia.edu. *Bounds on the Dimension of Ext^1 for Finite Groups of Lie Type.*

Let G be a finite group of Lie type defined in characteristic p , and let k be an algebraically closed field of characteristic $r > 0$, where $r \neq p$ (so, we are in the non-defining characteristic case). In 2011, Guralnick and Tiep used homological and group theoretic methods to find bounds on the dimension of $H^1(G, V)$ (where V is an irreducible kG -module) in non-defining characteristic (independent of V). In this talk, we will describe a new approach to bounding 1-cohomology for finite groups of Lie type, which uses techniques of modular Harish-Chandra theory. We will demonstrate how this new cuspidal approach can be used to extend Guralnick and Tiep's results and find bounds on the dimension of $\text{Ext}_{kG}^1(Y, V)$, where Y and V are irreducible kG -modules. (Received January 22, 2019)