1062-20-13   **Brian D Boe*** (`brian@math.uga.edu`), Math Department, University of Georgia, Athens, GA 30602, and **University of Georgia VIGRE Algebra Group**. *First Cohomology for Finite Groups of Lie Type: Simple Modules with Small Dominant Weights.* Preliminary report.

We study the cohomology group $\mathrm{H}^1(G(\mathbb{F}_p), L(\lambda))$ when λ is less than or equal to a fundamental dominant weight. We provide a complete description in types E_7 and E_8 when $p > 7$; in type G_2 when $p > 5$; and in all other types when $p > 3$. In particular we show that, under these restrictions, this cohomology group is at most one-dimensional, and is usually zero. Our work extends the 1975–6 results of Cline-Parshall-Scott, Jones, and Jones-Parshall, who considered the special case when λ is a minimal nonzero dominant weight; in that case, our work provides a different proof of their earlier results. (Received May 28, 2010)