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Cornelius Pillen* (pillen@southalabama.edu), Department of Mathematics and Statistics,
University of South Alabama, Mobile, AL 36688. *Lifting modules for a finite group of Lie type to
its ambient algebraic group*. Preliminary report.

Let G be a simple algebraic group over an algebraically closed field k of prime characteristic p which is split over the prime field \mathbb{F}_p . Set $q = p^r$. The set of fixed points of the r th iterate of the Frobenius map on G , denoted by $G(q)$, form a finite group of Lie type group. We are interested in the following question: Given a $kG(q)$ -module M , can it be lifted to a module for the algebraic group G ? For example, a well-known result due to Robert Steinberg says that all the simple modules can be lifted. But in general the answer to this question is negative. This talk is a survey of known results together with some explicit SL_2 examples. (Received January 18, 2016)