Title: Overgroups of regular unipotent elements, finite and algebraic.

We briefly discuss some background material on connected reductive overgroups of regular unipotent elements in simple algebraic groups, as well as the general question of when lifting an embedding of a finite quasisimple group to an appropriate embedding of connected groups is possible, recalling results of Liebeck and Seitz. We then discuss our joint work with Tim Burness on $\mathrm{PSL}_2(p)$ subgroups of exceptional algebraic groups defined over an algebraically closed field of characteristic p, under the condition that the subgroup intersects the class of regular unipotent elements. This work is part of the larger problem of determining the maximal $\mathrm{PSL}_2(q)$ subgroups of the finite exceptional groups, as considered in recent work of Craven.