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**George J McNinch\*** ([george.mcninch@tufts.edu](mailto:george.mcninch@tufts.edu)), Dept Mathematics, Tufts University, 503  
Boston Avenue, Medford, MA 02144. *Nilpotent elements and reductive subgroups over a local field.*

Let  $K$  be a *local field* – i.e. the field of fractions of a complete DVR  $A$  whose residue field  $k$  has characteristic  $p > 0$  – and let  $G$  be a connected, absolutely simple algebraic  $K$ -group  $G$  which splits over an unramified extension of  $K$ . We study the rational nilpotent orbits of  $G$  – i.e. the orbits of  $G(K)$  in the nilpotent elements of  $(G)(K)$  – under the assumption  $p > 2h - 2$  where  $h$  is the Coxeter number of  $G$ .

A reductive group  $M$  over  $K$  is *unramified* if there is a reductive model  $\mathcal{M}$  over  $A$  for which  $M = \mathcal{M}_K$ . We have shown for any nilpotent element  $X_1 \in \text{Lie}(G)$  that there is an unramified, reductive  $K$ -subgroup  $M$  which contains a maximal torus of  $G$  and for which  $X_1 \in \text{Lie}(M)$  is *geometrically distinguished*.

The talk will describe this result, and provide some context and examples. (Received March 01, 2020)