1139-14-140 **Nham V Ngo*** (nvngo@ung.edu), University of North Georgia - Gainesville, Department of Mathematics, 3820 Mundy Mill Rd, Oakwood, GA 30566. *On geometric properties of G-saturation.*

Let G be a semisimple algebraic group defined over an algebraically closed field of characteristic 0 and P a parabolic subgroup of G. Let M be a P-module and V a P-stable closed subvariety of M. Suppose that V is a variety with nice structure such as normality or rational singularities. One of interesting questions is whether (or under what conditions) the G-saturation variety $G \cdot V = \{gv : g \in G, v \in V\}$ is so. In this talk, we present some results related to answering this question. As an application, we prove that nilpotent commuting varieties over 3×3 matrices have rational singularities. (Received February 06, 2018)