1145-20-708   **Nate Iverson*** (`niverson@sienaheights.edu`). *The number of nontrivial orbits under the composition operation for bounded juggling patterns.*

In the 1994 paper *Juggling Drops and Descents*, Buhler, Eisenbud, Graham and Wright define a juggling pattern to be a permutation of the integers f such that $f(t) \geq t$. These patterns mathematically describe the site-swap notation that was in use by jugglers prior to the papers publication. The authors go on to count the number of n-periodic b-ball juggling patterns.

In this talk we will examine the more algebraic properties of the semigroup of juggling patterns under the composition operation. In particular we will retrace the previous authors' result that the number of non-trivial orbits (or balls) of a bounded juggling pattern is the average of the heights and sketch a proof that the number of balls is a congruence with respect to the composition operation within the bounded juggling patterns. (Received September 13, 2018)