

1035-N1-1593      **Nate M Iverson\*** ([inathan@bgsu.edu](mailto:inathan@bgsu.edu)), 400 Mathematical Sciences Building, Bowling Green State University, Bowling Green, OH 43403. *Juggling Permutations*. Preliminary report.

Juggling patterns can be considered as permutations of the integers with the operation of composition. This paper shows that the periodic juggling permutations have the number of balls as a congruence. The resulting quotient is isomorphic to the semigroup  $(\mathbb{N}, +)$  giving the number of balls in a composition, and a general  $n$ -fold decomposition. The methods involved should be accessible to undergraduates with some basic knowledge of algebra and uses some elementary combinatorics. (Received September 20, 2007)