1138-15-400 **Joshua Boone*** (`joshua.boone@lmunet.edu`). *Integer Powers of General Matrices with Applications.* Preliminary report.

We say a 2×2 matrix A has *projective order* n if n is the smallest integer such that $A^n = \lambda I$, a multiple of the identity matrix. In this talk, new formulae for integer powers of 2×2, 3×3, and 4×4 matrices is presented, along with the above motivation. Examples and extensions of the concept of projective order to the 3×3 and 4×4 cases are presented, as time allows. (Received February 14, 2018)