1154-60-1044 **Martin V. Hildebrand*** (mhildebrand@albany.edu), Department of Mathematics and Statistics, University at Albany, SUNY, 1400 Washington Ave., Albany, NY 12222. *A multiplicatively symmetrized version of the Chung-Diaconis-Graham random process.* Preliminary report.

This work looks at random processes of the form $X_{n+1} = a_n X_n + b_n \pmod p$ where (a_0, b_0), (a_1, b_1), (a_2, b_2), ... are i.i.d. with $P(a_n = (p+1)/2) = P(a_n = 2) = 1/2$ and $P(b_n = 1) = P(b_n = 0) = P(b_n = -1) = 1/3$, p is odd, and $X_0 = 0$. This work shows that order $(\log p)^2$ steps are sufficient for X_n to be close to uniformly distributed on the integers mod p. Also order $(\log p)^2$ steps are necessary for X_n to be close to uniformly distributed in the integers mod p. A consequence is that there are doubly stochastic matrices P_1 and P_2 such that at least one row of $(0.5P_1 + 0.5P_2)^m$ will be close to uniform only for m much larger than values of m, i.e. order $(\log p)\log(\log p)$, which suffice to make all rows of P_1^m and P_2^m close to uniform. (Received September 12, 2019)