1044-34-30   **Ronald E. Mickens*** (`rohrs@math.gatech.edu`), Clark Atlanta University, Department of Physics, Box 1744, Atlanta, GA 30314. *An Integer-Valued SIR Model With Square-Root Dynamics.*

Coupled ODE's for SIR models with the total population constant, and having a $\sqrt{IS}$ interaction term, generally have solutions for which $S(t)$ goes to zero at some time, $t = t^*$, and $S(t) = 0$ for $t > t^*$. We construct a discrete-time version of such a system and reformulate it such that all populations are both integer-valued and non-negative. We present several mathematical properties of the solutions to the ODE's and display numerical results for the discrete-time models.

1