1145-VN-2153 **Matthew Young***, Penn State University Mathematics Dept., 104 McAllister Building, State College, PA 16802, and **Andrew Belmonte**. *Fair Contributions in a Nonlinear Stochastic Public Goods Game.*

Much research has focused on how cooperation arises in public goods games, in which players either contribute to a shared good (cooperate) or do not (free-ride). Equilibrium solutions include the coexistence of cooperators and free-riders, or total extinction. We construct a population model around a nonlinear public goods game, with variable contributions and a subrational learning algorithm for players. We find the emergence of a fair solution, an equilibrium in which all players contribute the same amount, when players play in proper subsets of the population, rather than all playing together. (Received September 24, 2018)