Mathematical model of gender bias in physics based on Galtung's triangle of violence JENNIFER PEARCE, Roger Williams University — Johan Galtung proposed his theory of a triangle of violence in 1969 to explain how unseen violence hidden in the structures and culture of society can lead to the suppression of whole groups of people. In addition to direct violence, the other two points of the triangle are "Structural violence" and "cultural violence"; indirect methods that dominant groups use to cause harm. This study uses an iterative map based on the well known Lotka-Volterra equations to model the triangle of violence. The r-value is used to represent structural violence, the interaction term between two populations represents cultural violence, and a stochastic term direct violence. Following an earlier study on the stochastic logistic map, the effective r value is calculated for two different interacting populations, dominant and non-dominant. These can be used to calculate the total population and the percent of the total population for either group. Based on these results, we show that physics remains less diverse than other sciences because we graduate many fewer students on average than other sciences.

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