1035-60-1645   **Alexandra Sasha Landsman*** (`landsmanster@gmail.com`), 4201 31st Street South, Apt. 520, Arlington, VA 22206, and **Ira B Schwartz** and **Mark I Dykman**. *Stochastic extinction of epidemics in large populations and role of vaccinations.*

We investigate stochastic extinction in an epidemic model and the impact of random vaccinations in large populations. Large fluctuation theory, which incorporates a path integral approach to find the likeliest trajectory to extinction, is used to investigate a stochastic SIS model. We find that different random vaccination strategies can have widely different results in decreasing expected time till extinction, for the same total amount of vaccines used. For certain range of parameters, less frequent, larger amplitude vaccinations can be far more effective in increasing the probability of extinction compared to the more frequent, smaller amplitude vaccinations. (Received September 20, 2007)

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