

1135-60-2962

**Ryan T. White\*** ([rwhite2009@fit.edu](mailto:rwhite2009@fit.edu)), Department of Mathematical Sciences, 150 W. University Blvd., Melbourne, FL 32940. *Exits of Oscillating Random Walks Under Delayed Observation.*

We study the behavior of the random walk  $A(t)$  of a particle on a random lattice enclosed by an open rectangle. Since the lattice is randomly generated as the particle moves, determining the first exit time and position of the particle upon exit is nontrivial. To further complicate the situation,  $A(t)$  is observed only upon a third-party independent point process  $\{\tau_n\}$ . The observed time series  $\{A(\tau_n)\}$  presents crude, delayed data. This sequence is analyzed to recover probabilistic data about the true process. The characteristic functions of the first observed exit time and position of the process upon observed exit are derived and reduced to explicit expressions for special cases. The process has two intended applications: (1) modeling networks under attacks disabling valuable nodes, where the results can predict their crashes and offer remedies, and (2) modeling the short-term accumulation of funds, which is useful in tracking suspicious financial transactions. (Received September 26, 2017)