

1106-VK-2267 **D Brian Walton*** (waltondb@jmu.edu), 60 Bluestone Dr, MSC 1911, Roop Hall 110,
Harrisonburg, VA 22807. *Maximum likelihood analysis of transposable element age distributions
using a master copy model of evolution.* Preliminary report.

Transposable elements (TEs) are genetic elements in DNA that self-replicate and insert copies of themselves to other locations in the genome. This process often has a high failure rate so that copies are dead on arrival. Nonfunctional copies generate sequences subject to neutral evolution and thereby provide artifacts that document the history of TE activity. Using the master copy model of evolution, we establish a stochastic model of TE production and evolution that facilitates the calculation of likelihood for observed sequences based on parameters for the age distribution and the rates of evolutionary events of substitutions, insertions and deletions. This report discusses the numerical implementation and results of these models and their application to genome analysis. (Received September 16, 2014)