Abstract Submitted
for the SES20 Meeting of
The American Physical Society

Pseudo-Data Generation for Applications to the In-Beam Neutron Lifetime Measurement LEONARD MOSTELLA, University of Tennessee Knoxville — The free neutron lifetime is a crucial input parameter in big bang nucleosynthesis calculations and in our understanding of the weak force, yet discrepancies in its measurement have persisted for over a decade. The two classes of experiments, the "bottle" and "beam" methods, have disagreed by over 4σ. To better understand this discrepancy, the newest generation neutron lifetime measurements are pushing for higher precision. In order to help achieve this goal, a pseudo-data set was generated for the beam lifetime experiment to benchmark current data analysis techniques as well as test new machine learning algorithms. The materials to be presented in this talk include pseudo-data generation methods, types of events created, and comparison to real data.

Leonard Mostella
University of Tennessee Knoxville

Date submitted: 19 Oct 2020 Electronic form version 1.4