Abstract Submitted
for the DNP19 Meeting of
The American Physical Society

BL3: A next generation "beam" experiment to measure the neutron lifetime[1] NADIA FOMIN, University of Tennessee — Neutron beta decay is an archetype for all semi-leptonic charged-current weak processes. A precise value for the neutron lifetime is required for consistency tests of the Standard Model and is needed to predict the primordial 4He abundance from the theory of Big Bang Nucleosynthesis. An effort is under way for an in-beam measurement of the neutron lifetime that is able to evaluate the systematic uncertainties at the 0.3 s level. This effort is part of a phased campaign of neutron lifetime measurements based at the NIST Center for Neutron Research, using the Sussex-ILL-NIST technique. Recent advances in neutron fluence measurement techniques as well as new large area silicon detector technology address the two largest sources of uncertainty of in-beam measurements, paving the way for a new measurement. The experimental design, schedule, and projected uncertainties for the main subsystems will be discussed.

[1]This work was supported by the U.S. Department of Energy, Office of Science, Office of Nuclear Physics, under contract DE-FG02-03ER41258

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Date submitted: 12 Jul 2019 Electronic form version 1.4