Abstract Submitted
for the DNP15 Meeting of
The American Physical Society

**Nab: a precise study of unpolarized neutron beta decay**[1] DINKO POCANIC, Institute for Nuclear and Particle Physics, University of Virginia, NAB COLLABORATION — Nab is a program of measurements of unpolarized neutron decays at the Spallation Neutron Source, Oak Ridge, TN. Nab aims to determine $a$, the $e$–$\nu$ correlation with precision of $\delta a/a = 10^{-3}$, and $b$, the Fierz interference term, with uncertainty $\delta b \simeq 3\times10^{-3}$. The set of available observables overconstrains neutron beta decay in the Standard Model (SM), opening the door to searches for evidence of possible SM extensions. Projected Nab results will lead to a new precise determination of the ratio $\lambda = G_A/G_V$, and to significant reductions in the allowed limits for both right- and left-handed scalar and tensor currents. Alternatively, Nab may detect a discrepancy from SM predictions consistent with certain realizations of supersymmetry. A long asymmetric spectrometer, optimized to achieve the required narrow proton momentum response function, is currently under construction. The apparatus is to be used in follow-up measurements (ABba experiment) of asymmetry observables $A$ and $B$ in polarized neutron decay. Nab is planned for beam readiness in 2016. We discuss the experiment's motivation, expected reach, design and method, and update its status.

[1]Work supported by NSF grants PHY-1126683, 1205833, 1307328, 1506320, and others.

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Date submitted: 30 Jun 2015 Electronic form version 1.4