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A Precision Measurement of Unpolarized Neutron Beta Decay in the Nab Experiment JASON FRY, University of Virginia, NAB COLLABORATION — The Nab experiment will make measurements of the electron-neutrino correlation parameter a with a precision of $\delta a/a = 10^{-3}$ and the Fierz interference term b to $\delta b = 3 \times 10^{-3}$ in unpolarized free neutron β decay. These results aim to deliver an independent determination of the ratio $\lambda = G_A/G_V$ that will sensitively test CKM unitarity. Nab utilizes a novel, long asymmetric spectrometer that guides the decay products to two large area silicon detectors in order to precisely determine the electron energy and proton momentum. The Nab apparatus is under installation on the Fundamental Neutron Physics Beamline at the SNS at ORNL. We present an overview of the Nab experiment and updates on the spectrometer, magnetometry, and systematic effects.

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