The Nab experiment\textsuperscript{1} CHRISTOPHER CRAWFORD, University of Kentucky, NAB COLLABORATION — Neutron decay is a clean semi-leptonic process which depends on the vector $G_V$ and axial-vector $G_A$ coupling constants. The ratio $\lambda = G_A/G_V$, which can be extracted from various correlations in decay products of the neutron, is important for determination of $V_{ud}$ in unitarity tests of the CKM matrix, and to test extensions of the standard model. The goal of the newly funded Nab experiment is to measure the electron-neutrino decay correlation $a$ with a relative uncertainty of $10^{-3}$, and the Fierz interference term $b$ with an overall uncertainty of $3 \times 10^{-3}$. This experiment uses a new technique to determine the electron-neutrino angle from the energy of the electron and proton, detected in coincidence. We will present the physical design and projected sensitivity of this experiment.

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