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Detection systematics in the Nab experiment[1] LEAH BROUSSARD, Oak Ridge National Laboratory, NAB COLLABORATION — The Nab experiment will perform precise measurements of neutron beta decay correlations to test our understanding of the electroweak interaction and look for hints of new physics missing from the Standard Model. The electron anti-neutrino correlation a is reconstructed from the decay proton's time of flight and decay electron's energy, and the Fierz interference term b is extracted by precisely measuring the shape of the beta spectrum. Reaching Nab's goal precision requires accurately characterizing systematics such as mechanisms for energy loss of the electrons and differences in the measured timing of the electron and proton events. Precision characterization of these effects can also be applied to a recent measurement of the beta spectrum of ^{45}Ca or other nuclei using these detectors. This presentation will include an update on the detection system development and recent studies, a discussion of the detection systematics and their impact on the decay correlation measurements, and an overview of plans for their characterization.

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