

Abstract Submitted
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Slow Controls for the Nab β -decay Experiment NOAH BIRGE, Univ of Tennessee, Knoxville, NAB COLLABORATION — The Nab experiment aims to measure the free neutron β -decay parameters ‘a’ and ‘b’ with a relative accuracy of 10^{-3} . The ratio between the axial-vector and vector couplings, λ , of the Standard Model will be extracted from this measured value of ‘a’. The experimental apparatus includes a novel 7 m long time-of-flight magnetic spectrometer and thick, large-area, highly segmented, cooled Si detectors with cooled preamplifiers at both ends of the spectrometer. For detection, the proton has to be accelerated to -30kV, and minimization of the detector backgrounds requires the spectrometer to be operated at ultra-high vacuum levels. As such, the experimental environment must be meticulously monitored and controlled to minimize systematic uncertainties. I will present requirements for the experiment and discuss plans to control and monitor the experimental environment. Additionally, since real-time data serves as a key indicator of the experimental environment, as well as accumulated statistics, a program design for online data monitoring and analysis will also be presented.

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